THE RELATIONSHIP BETWEEN SELF-SELECTED PERSONALITY CHARACTERISTICS AND PREFERENCES FOR JOB FEATURES, ORGANISATIONAL FEATURES AND CAREER GOALS

STACEY-LEIGH TITUS

TTSSTA001

A dissertation submitted in partial fulfillment of the requirements for the award of the Degree of Master of Social Science in Organisational Psychology

Faculty of Humanities

University of Cape Town

2011

COMPULSORY DECLARATION:

This paper has not been previously submitted in the whole, or in part, for the award of any degree. It is my own work. Each significant contribution to this paper has been cited and referenced.

Signature: ……. Date: 15 December 2011

ABSTRACT

This exploratory study investigated the relationship between personality characteristics and preferences for job features, organisational features and career goals. A review of literature has revealed that there are associations between individuals' personality characteristics and their preferences for specific aspects of these three variables. This study focused on final year graduate students (*N* = 15 066) from universities across South Africa. Correspondence analyses revealed that there are associations between certain personality characteristics and the various features and goals though the strength of the associations varied between the elements of the variables. Classification trees also revealed relationships between some of the personality characteristics and the various features and goals. Classification trees revealed high proportions of particular personality traits that were selected with particular job features. Secondary data was utilised in this study and no theoretical link was made between the personality characteristics in the survey and academic research. Since this study was exploratory in nature, the data from the survey was utilised to identify whether or not any patterns existed between the elements of the four variables. Implications for research and practice are discussed.

ACKNOWLEDGEMENTS

To my supervisor, Anton Schlechter, thank you for your guidance and support during the research process.

To the Department of Organisational Psychology at the University of Cape Town, thank you for support provided during the year.

To the UCT Department of Statistics, thank you for your guidance with the results of this study.

To Magnet Communications, thank you for granting permission to use the data from your study.

Table of Contents

LIST OF TABLES

LIST OF FIGURES

Chapter 1: Introduction

The twenty-first century, which has been classified as the knowledge economy is characterised by globalisation and continuous technological innovation (Athey, 2004; Stukalina, 2008). Globalisation has resulted in the economies of different countries becoming more interdependent (Athey, 2004; Stukalina, 2008). Technological innovation has led to the development of new products, services, markets and knowledge globally. These have led to the rapid exchange of new ideas locally and internationally, resulting in the expansion of the job market and the globalisation of many jobs (Athey, 2004; Stukalina, 2008). Globalisation and technological advancements have led to new ways in which people organise their professional lives and ways of working (Lamb & Sutherland, 2010; Mayrhofer et al., 2005; Tucker, Kao & Verma, n.d.). People have become more mobile and their skills more transferrable (Athey, 2004).

The knowledge economy, also referred to as the Information Age, has resulted in a dramatic increase in the extent to which organisations rely on their employees (Earle, 2003). It is has been reported that organisations' strong reliance on employees are likely to continue to increase (Earle, 2003). Knowledge has become one of the most highly valued commodities in the current economy (Donnelly, 2008) and industries have become more knowledge-based (Burke & Cooper, 2006). As knowledge is a critical aspect of today's world of work (Meisinger, 2006) it has become more desirable in employees (Lamb & Sutherland, 2010; Stukalina, 2008; Tucker et al., n.d.). Organisations have become more reliant on its employees' knowledge or intellectual capital for its success and sustainability (Athey, 2004).

An organisation's knowledge can be seen as the collective skills, experience and creativity of its employees (Lamb & Sutherland, 2010). These factors differentiate many organisations from their competitors (Lamb & Sutherland, 2010). For an organisation to thrive, it requires employees with the necessary knowledge to meet the challenges presented by the knowledge economy (Tomlinson, 2007).

Employees who possess the necessary knowledge, skills, experience and creativity required to help an organisation be more successful in a knowledge economy have been referred to

as knowledge workers (Donnelly, 2008). The increasing importance of having knowledge workers within organisations has led to the perception that they are strategically important (Lamb & Sutherland, 2010). An organisation's competitive advantage lies in the quality of its employees which is also known as its human capital (Vermeulen, 2007). Human capital is the combined intelligence, skills, expertise and capabilities of employees that distinguish one organisation from another. Human capital is perceived to be one of the most decisive elements in organisations gaining a competitive advantage (Baruch, 2006; Schreuder & Coetzee, 2006). In the current business climate, where growth is largely a result of creativity and technological innovation, an organisation's human capital is one of its most valuable assets (Corporate Leadership Council, 2006).

Human capital is also known as an organisation's talent (Vermeulen, 2007). As the quality of an organisation's talent has a strong influence an organisation's ability to be competitive, it should be managed as effectively as possible. Talent management is therefore crucial to achieving organisational success (Vermeulen, 2008). Talent management is the process whereby employers anticipate and meet the organisation's needs for human capital (Cappelli, 2008; Vermeulen, 2008; Vermeulen, 2007).

Talent management consists of identifying, attracting, developing and retaining talent (Vermeulen, 2008; Vermeulen, 2007). It is about ensuring that the right employees are in the right roles at the time required, doing the right tasks (Vermeulen, 2008; Vermeulen, 2007). Talent attraction is one important aspect of the talent management process (Vermeulen, 2008). Organisations need to focus their efforts on attracting and recruiting the right talent in order to increase and maintain a competitive advantage (Corporate Leadership Council, 2006; Vermeulen, 2008). An organisation's ability to recruit, cultivate, and retain its talent will ultimately determine its sustainability and success (Earle, 2003). If organisations do not manage its talent effectively, it could lead to mismatches between the needs of an organisation and the abilities of employees to match those needs (Cappelli, 2008). Organisations will fail to capitalise on the competitive edge that its talent can offer in good economic times and will struggle during times of recession (Vermeulen, 2008).

With the advent of globalisation and more organisations extending into global markets, the competition for talent has extended globally (Earle, 2003; Economist Intelligence Unit Limited, 2010; Schuler, Jackson & Tarique, 2011). It is believed that this form of competition will continue to increase exponentially over the next few decades. A survey conducted by Deloitte in 2010 with 334 executives found that more than forty percent of participants rated competing for talent globally as one of their most pressing concerns (Deloitte, 2010). One of the most significant challenges faced by companies competing in the global marketplace is getting the right talent within the business. The knowledge economy has thus resulted in organisations drawing a distinction between simply needing people and needing more talented people (Earle, 2003; Schuler et al., 2011).

Skilled and competent talent is in high demand (Vermeulen, 2008). With the twenty-first century labour market being exposed to greater varieties of careers and global mobility of jobs, the attraction and retention of top talent is becoming a greater challenge for many organisations (Schuler et al., 2011; Tarique, 2010; Vermeulen, 2007). Challenges, such as the brain drain, shortages of skilled workers and high staff turnover due to high mobility, have resulted in a war and demand for talent in the existing labour force (Tarique, 2010; Vermeulen, 2007). A talent management survey conducted by McKinsey in 2006 with business leaders globally found that they considered attracting talented people as likely the most important managerial focus for the rest of the decade (Guthridge, Komm & Lawson, 2008). The same study conducted in 2007 revealed that respondents expected increasing competition for talent both locally and globally.

The existing labour market consists of many talented individuals with various levels of skills, abilities and competencies. A segment of the labour market identified as an important pool of talent is graduate students. Graduates are depicted as being an elite social and occupational group who will fulfil their potential through careers as knowledge workers (Mayrhofer et al, 2005; Tomlinson, 2007). The characteristics of knowledge workers are that they continually align their skills and competencies to meet current business challenges (Drucker, 1994). Knowledge workers place great emphasis on learning, are highly mobile and capitalise on their high levels of knowledge and skills. These types of employees are required to increase an organisation's competitive advantage. Graduates are thus

particularly attractive to organisations because of their perceived potential as knowledge workers. As knowledge workers, it is perceived that graduates' potential skills and competencies will meet the needs of organisations to be successful in the current and future economy.

The untapped potential of graduates has become a key reason for organisations' drives to attract the graduate segment of the labour market. One method that organisations use to attract them is through graduate recruitment programmes. These programmes are meant to fast track graduates' contribution to and development within the organisation. Graduate recruitment programmes serve as a feeder into the organisation's talent pipeline for important positions within the organisation (Connor & Shaw, 2008). Recruiting graduates is therefore crucial to many organisations. The hopes of many organisations' futures are pinned, to a large extent, on these graduates. Organisations hoping to attract members of the graduate labour market need to consider how graduates perceive them (Mayrhofer et al, 2005). This is especially important as companies compete for graduate talent.

Studies conducted by the South African Graduate Recruitment Association (SAGRA) between 2007 and 2010 revealed a trend that graduate recruiting organisations were increasing graduate vacancies each year. In the 2007 survey it was found that graduate vacancies were set to increase by approximately four percent in 2008, compared to the previous year (SAGRA, 2008). In 2008 graduate recruiters revealed that graduate vacancies were set to increase by approximately twelve percent in 2009 (SAGRA, 2008). It was also found that vacancy levels increased in nine out of ten industry sectors. In 2010, it was found that organisations planned to increase the number of graduate vacancies in 2011 by seventeen percent compared to the previous year (SAGRA, 2010).

The Problem Statement

The competition among organisations for graduate talent means that in order to be effective at recruiting graduates, organisations need to ensure that they are attractive to graduates (Mayrhofer et al, 2005; Vermeulen, 2008). Organisations need to ensure that they are able to attract a variety of graduates to ensure that they have the best chance of

selecting the most suitable graduate to work for the organisation. The selection of the right graduates can significantly add to the quality of talent within the organisation.

In order for organisations to have the widest pool of good graduates to choose from, graduates need to be attracted to applying the organisation. This means that the organisation needs to be perceived as being the best to work for or an employer of choice. Attraction to an organisation depends on what they are able to offer graduates as employees. Organisations therefore need to understand what they need to offer graduate students in order to positively influence their decision to apply.

Knowing what attracts graduates can serve as input in creating an effective Employee Value Proposition (EVPs). An EVP consists of the attributes that the labour market and employees perceive as the value they could gain through being employed in a particular organisation (Corporate Leadership Council, 2007; Vermeulen, 2008). According to research conducted by the Corporate Leadership Council (2007), an effective EVP can allow an organisation access to better quality talent consisting of more high-performing candidates in the labour market. Creating and delivering an effective EVP allows an organisation to increase its access to candidates in the labour market by more than fifty percent (Corporate Leadership Council, 2007). This is the kind of return on investment that the development of an effective EVP can result in.

In order to develop effective EVPs, organisations need to understand the factors influencing graduates' choices of organisations. To manage talent successfully, business leaders need to recognize that different people are attracted to different features of work and organisations (Guthridge et al., 2008). With increasing competition among organisations to attract talent, one generic EVP may no longer be sufficient to attract different sectors of the labour market. It would be more beneficial for organisations to tailor their EVPs in order to attract a variety of individuals.

EVPs should target labour market segments with different values, ambitions and expectations (Guthridge et al, 2008). One of the differences within the labour market can be associated with age (Guthridge et al., 2008). Age is an important factor to consider when

attracting individuals to organisations. In order to be effective in the current and future economies, organisations need to recognise the work preferences of different generations (Shaw & Fairhurst, 2008). The current generation of graduates fall under the Generation Y cohort. Generation Y refers to individuals born during a particular time period, usually between 1977 and 2003 (Earle, 2003; Shaw & Fairhurst, 2008). They are the most recent generational group to have entered higher education and the world of work and are thus far the most technically literate and ethnically diverse generation. These graduates are typically described as being confident, independent, individualistic, self-reliant and entrepreneurial (Shaw & Fairhurst, 2008). The increasing changes in the world of work have resulted in these graduates typically seeing themselves as being responsible for managing their own careers (Tomlinson, 2007).

The development of mass higher education has intersected with the knowledge economy (Tomlinson, 2007). With graduates being perceived as knowledge workers, it is increasingly important for organisations to be aware of what attracts them. This will put organisations in a better position to capitalise on this pool of knowledge workers.

Organisations are investing considerable amounts of money each year in graduate recruitment and selection drives. The South African Graduate Recruiters Association conducted a study in 2008 with sixty-three South African companies. These companies were actively involved with graduate recruitment. One of the areas investigated was the costs associated with graduate recruitment and selection. The activities involved in graduate recruitment as well as costs vary by organisation. Generally however, graduate recruitment activities consist of graduate marketing, recruitment and selection activities and remuneration and benefits (SAGRA), 2008). All these activities have significant costs associated with it (SAGRA, 2008).

The study conducted by SAGRA (2008) found that graduate marketing generally consisted of investing in graduate recruitment literature, companies' graduate recruitment websites, graduate recruitment advertising, online graduate recruitment promotions, attendance at graduate careers fairs and on-campus presentations. In terms of recruitment and selection activities, behavioural-based interviews were the most popular selection technique for

assessing candidates. Approximately ninety-three percent of participating companies utilised this technique (SAGRA, 2008). Aptitude testing was used by seventy-nine percent of employers (SAGRA, 2008). In 2007, the average number of applications received by employers was eight hundred and the average number of applications per vacancy in the same year was thirty-eight (SAGRA, 2008). Companies reported utilising at least two full time employees to work on graduate recruitment in 2008. In terms of graduate remuneration, eighty-eight thousand rand was found to be the average starting salary. The most common benefits for graduates included study leave or sponsorship, training for a professional qualification and pension schemes. Just over half of employers expected an increase in cost of living salaries for 2009. Table 1 presents a summary of the findings of the participating companies' average costs associated with the above graduate recruitment activities (SAGRA, 2008).

Table 1

Average cost of South African graduate recruitment in 2008

Graduate recruitment activity	Average cost
Graduate marketing	
Creating and advertising recruitment literature	R40 000
Creating and maintaining graduate recruitment websites	R15 000
Online promotions	R29 000
Graduate recruitment advertising (career directories, newspapers and journals)	R72 5000
Careers fairs	R49 200
Campus presentations and promotions	R73 500
Recruitment and selection activities	
Salary costs for graduate recruitment staff in 2007	R320 000
Selection processes in 2008	R100 000
Overheads directly related to graduate recruitment	R100 000
Salaries	
Graduate starting salary in 2008	R88 000
Highest starting salaries in 2008 (mining, investments and consulting firms)	R190 000
Highest starting salaries (actuarial work, civil engineering and geology)	R240 000
Starting bonus in 2008	R6 000

The findings summarised in Table 1 are evidence that graduate recruitment poses a considerable cost for organisations. Furthermore, these costs can be expected to increase

each year. A similar survey conducted by SAGRA in 2011 with 81 employers found that when combined, these employers spent over 28 million rand on graduate recruitment (SAGRA, 2011).

The amount of time and costs associated with graduate recruitment is evidence that organisations consider this an important activity worthy of investment. If organisations are investing large amounts of money as well as time on graduate recruitment, it would be in their best interest to ensure a good return on their investment. This means that the time and money spent on graduate recruitment activities need to result in the selection and placement of the best graduates that will add to the quality of the talent within the organisations.

Aim of the Study

As discussed in the previous sections, in order to improve the chances of selecting and placing the right graduates, organisations need to ensure that graduates apply to their recruitment programmes. To secure graduation applications, organisations need to ensure that graduates are attracted to them. Graduates will only be attracted to organisations if they present offerings that graduates find attractive. Organisations can tailor their offerings to suit graduates if they understand what graduates consider to be attractive.

It is acknowledged that there are a wide range of factors that can influence graduates' attraction or preferences for applying to organisations. One specific factor that will be investigated in this study is the role of self-selected personality characteristics in graduates' preferences for organisations.

A review of the available literature has revealed that there are specific job and organisational features that the current generations of graduates are attracted to. These graduates also have various career goals and are attracted to organisations that allow them the opportunity to achieve their goals. The purpose of this study is therefore to explore the extent of the relationship between graduates' self-selected personality characteristics and preferences for specific job features, organisational features and career goals. The current study focuses on these variables because findings in the literature suggest that there may be

a relationship between an individual's personality type and their preference for particular jobs, organisations and career goals.

In order to investigate the extent of these proposed relationships, an exploratory research approach was adopted, with the focus on answering the following three research questions:

1. Do self-selected personality characteristics explain graduates' job preferences?
2. Do self-selected personality characteristics explain graduates' organisational preferences?
3. Do self-selected personality characteristics explain graduates' choices of career goals?

In order to address these research questions, the following research objectives were identified for this study:

- To identify whether or not graduates with similar self-selected personality characteristics are attracted to similar job features
- To identify whether or not graduates with similar self-selected personality characteristics are attracted to similar organisational features
- To identify whether or not graduates' with similar self-selected personality characteristics align to similar career goals

Potential Contributions to Theory and Practice

The investigation of this study's research questions and objectives will hopefully provide significant contributions both practically and academically. The practical significance of this study is important for South African organisations recruiting graduates. A study of this nature has not been done before within the South African context and would benefit organisations that recruit and who intend to recruit graduates. It will provide them with an understanding of what attracts South African graduates so that they are better able to position themselves as an employer of choice. An understanding of what attracts graduates will aid organisations in customising its employee value propositions to make it more attractive to graduates. This will increase the chances of attracting its desired calibre of graduates to the business. Organisations that are successful in attracting and recruiting the right kind of talent are more likely to receive a return on the investment made in graduate

recruitment. Such organisations are also more likely to sustain a competitive advantage in the current economy.

This study further adds to the existing body of academic knowledge by investigating the relationship between personality characteristics and their relationship with job preferences, organisational preferences and career goals. This study will focus specifically on South African graduates' preferences, career goals and personality characteristics. There seems to be a lack of research regarding the job and organisational preferences as well as the career goals of South African graduates in particular.

Chapter 2: Literature Review

The current study aims to demonstrate the potential usefulness of considering the relationship between an individual's personality characteristics and their preferences for particular jobs and organisations, as well as career goals. Personality is a broad field of study spanning decades of research. This literature review will focus mainly on personality trait theories and certain broad categories of personality traits. This will be followed by a discussion of the typical organisational and job preferences as well as the career goals held by individuals with these different personality traits.

Personality

Personality has generally been defined as a set of an individual's psychological traits that are relatively stable over time (Barrick & Ryan, 2003; Cascio, 2006; Guthrie, Coate & Schwoerer, 1998; Mayrhofer et al., 2005; Semeijn, Boone, van der Velden & van Witteloostuijn, 2005). An individual's personality reflects who they are and determines their behavioural and cognitive style (Mount et al, 2005). Personality has been referred to as factors that explain the way an individual thinks, feels and acts (Hogan, Hogan & Roberts, 1996). These factors include interpersonal strategies that individuals develop to drive their social behaviour in dealing with others. Behaviour has generally been used to interpret and evaluate other peoples' personalities (Hogan et al, 1996). The actions and behaviours of individuals have been seen to be a function of the kind of people they are and therefore a manifestation of their personalities (Hogan et al, 1996). Personality, usually learnt in early socialisation, displays modest continuity from childhood to adulthood (Guthrie et al, 1998; Hogan et al, 1996; Mount, Barrick, Scullen & Rounds, 2005; Semeijin et al., 2005).

Personality is a broad field comprising many theories. This literature review focuses primarily on personality trait theories as traits explain much of human behaviour (Hersen & Thomas, 2006). Longitudinal studies have shown the importance of personality traits in predicting important life outcomes (Roberts, Kuncel, Shiner, Caspi & Goldberg, 2007). These studies have shown the validity of considering personality traits above other factors in explaining human behaviour.

Personality Traits

Personality traits have been defined as psychological traits or internal factors that influence the way individuals behave (Foxcroft & Roodt, 2001). Traits predispose individuals to behave in particular ways (Foxcroft & Roodt, 2001). Traits have distinctive qualities that reliably characterises an individual (Pervin, Cervone & John, 2005). The development of personality trait theory has been influenced to a large degree by Gordon Allport, Hans Eysenck and Raymond Cattell. They have defined traits as relatively enduring dispositions that influence the frequency and intensity of an individual's actions and experiences (Hersen & Thomas, 2006; Pervin et al, 2005). Traits researchers have attempted to demonstrate that traits can be important predictors of life situations, such as work success (Foxcroft & Roodt, 2001). The two common features of personality traits that have been identified are that they influence an individual's behaviour and tend to be stable over time and across situations (Epstein, 1994; Foxcroft & Roodt, 2001; Pervin et al, 2005).

Stability of traits over time.

With respect to the enduring nature of traits over time, various studies have confirmed that traits are relatively stable in adulthood (Hogan et al, 1996). This has been seen even with changes in roles, relationships, life circumstances and experiences (Hersen & Thomas, 2006). Longitudinal studies have found that individuals who scored high on a particular personality trait at a certain age showed relative continuity of that same trait ten years later (Hersen & Thomas, 2006).

Stability of traits across situations.

Personality traits are the differences in individuals' tendencies to show consistent patterns of thoughts, feelings and actions (Hersen & Thomas, 2006). According to Pervin et al (2005), Gordon Allport has recognised the influence of environmental factors on trait-related behaviour. Allport has asserted that although traits are enduring, the situation influences the extent to which the trait is displayed (Pervin et al, 2005). A personality trait expresses what an individual generally does over many situations. It does not necessarily manifest in every situation.

According to Hersen and Thomas (2006), Allport noted that traits are neuropsychological structures that contribute to an individual's actions. Allport, however, has been unable to explain the exact psychological processes that guided trait-related behaviour. Eysenck and Cattell (as cited in Pervin et al, 2005) has emphasised the biological foundations of personality traits. By understanding the biological systems that correspond to traits one would be able to explain trait-related behaviour.

Personality traits have been found to enable summarizing, prediction and explanation of an individual's behaviour (Pervin et al, 2005). Traits have provided a relatively economical way for people to summarise how one person differs from another. Traits have also allowed people to make predictions about how different people will behave in the future (Pervin, 2005). The findings have supported Hersen and Thomas's (2006) view that traits have a probabilistic influence on behaviour.

Allport (as cited in Hersen & Thomas, 2006) has made a distinction between common traits and personal dispositions. Personal dispositions have been defined as those tendencies that are unique to particular individuals. These are not relevant to any other person. In contrast, common traits have been defined as individual differences that are relevant to all people. Common traits are possessed by all people to a more or lesser degree.

Personality Trait Theory

There have been a vast number of personality trait theories and scales identified in related literature. Personality trait-based scales measure how much of a characteristic or trait an individual possesses (Schaubhut, Herk & Thompson, 2009). For the purposes of this study, only four personality scales based on their related theories will be discussed. These scales are: the Five Factor model of personality (aka the Big Five Personality dimensions); the Myers-Briggs Type Indicator (MBTI); the Sixteen Personality Factors (16 PF); and Holland's Vocational Interests Scale (RIASEC). These scales have been selected based on their relatively widespread use in both literature and practice. It has also been found by researchers to be sufficiently valid and reliable. In addition, each of these scales has at some point been linked to career related studies.

The four personality scales discussed have been based on trait theory. The traits have been summarised below in Table 2.

Table 2

Personality trait theories

Big Five personality types	MBTI	RIASEC Occupational Personality Types	16 PF (Second order)
Extraversion	Extraversion / Introversion	Realistic	Extraversion
Conscientiousness	Feeling / Thinking	Investigative	Self-control
Neuroticism	Judging / Perceiving	Artistic	Anxiety
Agreeableness	Sensing / Intuitive	Social	Accommodation
Openness to Experience		Enterprising	Tough-mindedness
		Conventional	

Each scale will be briefly described as well as the traits it measures. There has been a degree of commonality among the traits measured in the different personality scales. Traits are considered common if its definitions are generally similar. The different personality traits in the four scales have been grouped. This grouping has been based on similarities in definitions as well as groupings in literature. These traits are then discussed in terms of organisational preferences, job preferences and career goals.

The Five Factor Model of Personality.

The Five Factor model of personality is also known as the Big Five personality dimensions. According to this personality theory, all personality types can be clustered into five broad dimensions (Mount & Barrick, 1998). These dimensions are: Conscientiousness, Openness to experience, Extraversion, Agreeableness and Neuroticism (Mount et al., 2005). Research has confirmed that these dimensions cover the broad realm of personality to a large extent (Semeijn et al, 2005). This model has been described as necessary and sufficient to explain the basic dimensions of normal personality (Guthrie et al, 1998).

The Five Factor model has gained authority in academic literature (Mount & Barrick, 1998) and is often cited. The five dimensions have consistently emerged in various types of studies, such as longitudinal studies and across different sources, such as self-ratings,

spouses, acquaintances and friends (Barrick, Mount & Strauss, 1993). The five themes have also emerged in empirical studies conducted in different cultures (Mount, Barrick & Perkins, 1994). It has been found in studies using many different personality inventories, instruments and within different theoretical frameworks (Mount & Barrick, 1998; Mount et al., 1994). Research of this theory conducted with different demographic groups, such as age, sex, race, and language groups has also confirmed the validity of the framework (Mount et al., 1994; Barrick et al., 1993). It has been described as being a simple way to classify the vast number of personality characteristics (Mount & Barrick, 1998). The Five Factor model of personality constructs has been extensively used in studies measuring the relationship between personality features and work characteristics (Semeijn et al., 2005).

Sixteen Personality Factors (16PF).

Raymond Cattell, in an effort to arrive at a comprehensive description of personality, assembled as many personality traits as possible (McCurley & Murphy, 2005; Pervin et al., 2005). Cattell used Factor Analysis to cluster all the personality traits that he identified into sixteen personality factors. The sixteen factors have been expressed as bi-polar dimensions (Cohen & Swerdlik, 2005). These sixteen factors have also been referred to as source or basic traits (Cohen & Swerdlik, 2005). The sixteen factors have covered different aspects of personality, such as temperament and attitudes (Pervin et al., 2005). The 16 PF has been commonly used for career counselling purposes in South Africa (De Bruin, 2002). It has been found to provide useful career information regarding patterns of vocational interests and personality traits.

After the sixteen factors had been developed, Cattell embarked on another factor analysis to further reduce the number of traits (Cohen & Swerdlik, 2005). He has derived five factors from the original sixteen. These were: Extraversion, Anxiety, Tough-Mindedness, Accommodation and Self-Control. These have been referred to as second order personality traits and have been found to be similar to the Big Five traits. It is these second order traits that will be referred to in this study.

Myers-Briggs Type Indicator (MBTI).

The Myers-Briggs Type Indicator (MBTI) has been one of the most widely used personality measures in the world (Schaubhut et al., 2009). Based on Carl Jung's theory of psychological types (Foxcroft & Roodt, 2001), this personality measure consists of four dichotomous scales. These were: Introversion-Extraversion (E-I), Thinking-Feeling (T-F), Sensing-Tuition (S-T) and Judgement-Perception (J-P) (Schaubhut et al., 2009). Each trait type is considered equally valuable. Most other personality scales usually considered one end of the scale to be positive and the other to be negative. According to MBTI theory, each individual has one preference for each dichotomy (Schaubhut et al., 2009). Each person thus belongs to one of sixteen possible types (e.g. ISTJ or ENTP). Individuals who have been assigned the same profile are assumed to possess similar personality traits (Foxcroft & Roodt, 2001).

The MBTI has been extensively used in organisations to derive profiles of typical workers in occupations (Cohen & Swerdlik, 2005). It has been used as an employment selection tool to measure potential job-fit as well as in career counselling, team building and personal development (Cohen & Swerdlik, 2005; Foxcroft & Roodt, 2001).

Holland's Six Vocational Personality Types (RIASEC).

John Holland developed a theory of vocational personalities (Hersen & Thomas, 2006). Holland's theory stated that one's personality type played a role in your occupational choice (Cohen & Swerdlik, 2005). This theory has been based on the premise that it is important to establish a match between individuals and occupations. Holland's basic assumption was that individuals could be categorised into one of six personality types. These were: Realistic (R), Investigative (I), Artistic (A), Social (S), Enterprising (E) and Conventional (C). This theory has also assumed that there were six types of environments that parallel the six personality types, i.e. Realistic, Investigative, Artistic, Social, Enterprising and Conventional (Hersen & Thomas, 2006). An individual's personality has been assumed to be manifested as preferences for certain work activities and environments. Another assumption has been that individuals were attracted to environments that allowed them to use their skills and abilities as well as express their interests and values. This notion will be discussed further below.

The common traits found in the four personality scales.

The common traits that have been found across the four personality scales discussed were: Extraversion, Conscientiousness, Agreeableness/Accommodation and Openness to experience.

Extraversion.

Extraversion has been found in the Big Five, MBTI, and 16 PF scales. Extraversion has been characterised by being sociable, active, assertive, talkative and energetic (Pervin et al., 2005). The Enterprising trait in the RIASEC scale has been found to correspond to the Big Five's Extraversion factor (De Bruin, 2002).

Conscientiousness.

Conscientiousness has been characterised by hard work, task-focus, persistence, dependability and orderliness (Judge, Higging, Thoresen & Barrick, 1999; Mount et al., 2005; Stukalina, 2008). Conscientiousness on the Big Five scale has been found to be related to Conventional in the RIASEC scale (Blake & Sackett, 1999; De Bruin, 2002; de Fruyt & Mervielde, 1997; Gottfredson et al., 1993). It has been linked to Self-Control in the 16 PF scale (Cohen & Swerdlik, 2005; De Bruin, 2002). Conscientiousness has been found to be strongly related to Judging and weakly related to Perceiving in the MBTI scale (Hersen & Thomas, 2006).

Conscientiousness has been found to consistently relate to high performance across occupations (Judge et al., 1999; Mayrhofer et al., 2005; Mount & Barrick, 1998; Mount, Barrick, & Perkins, 1994; Van Dam, 2003). Evidence has shown that individuals who have the characteristics of conscientiousness, such as being dependable, reliable, careful, thorough, able to plan, organised, hardworking and persistent tend to have higher job performance in most occupations (Mount et al., 1994).

Agreeableness / Accommodation.

Agreeableness in the Big Five scale has been found to correspond to Accommodation in the 16 PF scale (Cohen & Swerdlik, 2005). It has been found to be strongly related to Feeling and weakly related to Thinking on the MBTI scale (Hersen & Thomas, 2006). Agreeableness or

Accommodation has been referred to being cooperative, considerate, tolerant, gentle, trusting, and respecting of other people's beliefs (Judge et al., 1999; Stukalina, 2008). Individuals scoring high on the Social traits on the RIASEC scale has been defined as humanistic and concerned with the welfare of others (Saddoris, 1985). Social traits will therefore fall under the Agreeableness category.

Openness to experience.

Openness to experience has been characterised by intellectual curiosity, being imaginative, autonomous and non-conforming (Judge et al., 1999). Individuals who have been classified as being open to experiences tend to be open-minded, expressive, original, introspective, and imaginative and have a preference for variety (Judge, Higging, Thoresen & Barrick, 1999; Mount et al., 2005; Stukalina, 2008). Openness to Experience has been related to the Investigative and Artistic interests on the RIASEC scale (De Bruin, 2002) and to Tough-mindedness on the 16 PF scale (Cohen & Swerdlik, 2005). It has been found to be strongly related to Intuition and weakly related to Sensing on the MBTI scale (Hersen & Thomas, 2006).

Neuroticism.

Neuroticism has been referred to as a general lack of positive psychological adjustment and emotional stability (Judge et al., 1999). Individuals who have been classified as being neurotic tend to exhibit high levels of anxiety, hostility, depression, self-consciousness, vulnerability and impulsiveness. This trait has not been emphasised in many studies of careers and has been perceived to have a negative impact on performance and career success (Van Dam, 2003). No particular career has been linked to Neuroticism in terms of success.

The Link between Personality and Interests

The discussion above provided a brief overview of the factors that describe the different personality traits. Personality traits play a role in an individual's job and organisational choices as well as their career goals. Personality traits reflect individuals' perceptions regarding their abilities, values, and personality (Guthrie, Coate & Schwoerer, 1998). Tomlinson (2007) found that students in particular have a tendency to consider personal

dispositions, attitudes and their individual characteristics when determining their labour market paths.

There has been a tendency to view students in universalistic terms (Tomlinson, 2007). This means that students approach the labour market in uniformed or similar ways (Tomlinson, 2007). This view has negated the different orientations and work-related identities that students develop in relation to their future labour market activities. Individuals have engaged with careers in ways that are consistent with their own frames of reference. Tomlinson (2007) has also suggested that work is a personal matter which involves the affirmation of a person's identity in engaging with the labour process. Identity has played an important role in the way individuals differentiate themselves in society (Tomlinson, 2007).

Differences which distinguish individuals have been represented by their interests and personality traits. Interests are long-term traits inherent in an individual (Mount et al., 2005). These represent differences in one's preferences for certain environments and activities found to be enjoyable and motivating (Mount et al., 2004). People have been found to be attracted to jobs and organisations that are congruent with their interests (Guthrie, Coate & Schwoerer, 1998; Mayrhofer et al., 2005; Zhang, 2008).

According to Semeijn, Boone, van der Velden and van Witteloostuijn (2005), graduates are attracted to organisations and careers that are aligned with their interests. Graduates who perceive a strong fit with an organisation will more likely apply and join that organisation (Terjesen, Vinnicombe & Freeman, 2007). Interests have been identified as being as expression of personality (Larson, Rottinghaus & Borgen, 2002; Zhang, 2008). The development of interests has been said to be a phase of personality development (Larson, Rottinghaus & Borgen, 2002). Interests and personality share similar structures because they arise from similar causal determinants (Larson, Rottinghaus & Borgen, 2002). If interests are an expression of a graduate's personality then it can be inferred that personality is a useful construct to investigate as a factor influencing job and organisational preferences as well as career goals.

The Link between Personality Characteristics, Job Preferences, Organisational Preferences and Career Goals

Personality traits have been related to achievement in educational and occupational domains (Roberts et al., 2007). It has been suggested that personality has a direct effect on labour market outcomes (Semeijn, Boone, van der Velden & van Witteloostuijn, 2005). Semeijn et al. (2005) emphasised the importance of personality characteristics for labour market outcomes. Terjesen, Vinnicombe and Freeman (2007) found that the five most common factors that attracted final year university students to organisations in the UK were investing heavily in training and development of employees, caring about employees, opportunities for long-term career progression, work variety and dynamic, forward-looking work environments. The following sections will discuss studies that have explored the links between personality characteristics and job preferences, organisational preferences and career goals.

The link between personality traits and job preferences.

Personality traits have been closely related to occupational interests (De Fruyt & Mervieldeas, 1996). Psychologists have suggested that individuals with certain personality traits will select jobs or occupations that suit their personalities (Pervin, Cervone & John, 2005). Personality traits have played a role in the kinds of jobs individuals choose (Pervin, Cervone & John, 2005). People have had a tendency to gravitate towards jobs that suit their personality characteristics (Hersen & Thomas, 2006).

Mucha (2004) has referred to a concept called the sweet spot. This refers to working in a role that is best suited to one's personality and competencies. When employees work in their sweet spot, they have typically been found to exhibit their best work in their role (Vermeulen, 2008) and tend to perform better in those occupations (Pervin, Cervone & John, 2005).

The link between personality traits and organisational preferences.

The terms work environment and organisations or organisational environment will be used interchangeably here. Work environments or organisational features have played an important role in applicant attraction (Terjesen et al., 2007). If an applicant has a positive

first impression of an organisation, it increases the likelihood of job acceptance. Individuals seek environments that correspond with their personality traits (Foxcroft & Roodt, 2001).

In 1909, Frank Parsons (as cited in Hersen & Thomas, 2006) developed the person-environment fit theory. This theory which has been developed as part of a career counselling tool advocated the importance of matching an individual's characteristics with the work environment (Foxcroft & Roodt, 2001). These characteristics include personality traits, among others. In order for an individual to adjust successfully to their work environment it is believed that there needs to be congruence between the individual's characteristics and that of the work environment. The MBTI has supported this idea as it assumes that different MBTI types function better in different environments (Foxcroft & Roodt, 2001). Holland's six vocational personality types (RIASEC) has also assumed that individuals' personalities are manifested in their preferences for work environments that correspond with their personality characteristics (Hersen & Thomas, 2006).

A meta-analysis of seventy-one studies conducted by Chapman, Uggerslev, Carroll, Piasentin and Jones (2005) revealed that organisations' characteristics have predicted applicant attraction outcomes. Individuals who has strongly identified with an organisation would be more likely to be attracted to applying to and joining that organisation (Terjesen, Vinnicombe & Freeman, 2007). Graduates' preferences for certain organisational attributes have influenced their intentions to apply (Ajzen, 1991; Ajzen & Fishbein, 1980).

The link between organisational and job preferences and the four personality traits.

Individuals have different needs that they seek to fulfil (Foxcroft & Roodt, 2001). Organisations and jobs have reinforcers to offer individuals to meet their needs (Foxcroft & Roodt, 2001). Organisations also have needs and individuals have skills, abilities and experiences to offer organisations to meet its requirements. There should be a match between the individual's preferences for particular job features and what the organisation and job offers. If the needs and offerings between the individual and the work environment correspond, ideal work adjustment will occur (Foxcroft & Roodt, 2001). The jobs and organisations that people with different personality traits are attracted to are presented

below. These are the typical jobs and organisations preferred by individuals with particular personality traits.

Extraversion and job / organisational preferences.

Extraverted individuals have been found to generally prefer jobs that are social and enterprising (Hersen & Thomas, 2006). They have been found to be attracted to jobs where they are able to interact with and help others (Foxcroft & Roodt, 2001; Judge, Higging, Thoresen & Barrick, 1999, Mount, Barrick, Scullen & Rounds, 2005; Van Dam, 2003; Zhang, 2008). They have also been found to enjoy jobs that require them to persuade and influence others (Saddoris, 1985). Extraverted people have preferred environments or organisations that provide them with opportunities to engage in activities, such as leadership, management and selling (Saddoris, 1985; Zhang, 2008).

Conscientiousness and job / organisational preferences.

A study conducted by Trank, Rynes and Bretz (2002) with business and liberal arts students in the USA have found that high achievers are typically attracted to environments that provide higher levels of competence. They have been found to be attracted to organisations that have stringent selection processes as these types of organisations are expected to provide them with stimulating work experiences (Trank et al., 2002). These types of students have displayed stronger preferences for organisations that offer challenging and interesting work, flexible job descriptions, broad career paths and opportunities for additional training. Conscientious individuals have also been found to be typically attracted to well-structured environments (Zhang, 2008). They have generally enjoyed working in organisations that allow them to produce tangible results and foster technical competencies (Saddoris, 1985).

In order to attract this type of personality, organisations need to find ways to increase the levels of job challenge and career growth opportunities. The specific types of jobs that these individuals have found to be enjoyable include working with data, filing records or reproducing materials (Mount et al., 2005; Stukalina, 2008; Zhang, 2008). They have generally preferred jobs where they can learn by doing (Saddoris, 1985).

Agreeableness and job / organisational preferences.

Mount, Barrick and Perkins (1994) found that agreeableness is a valid predictor of performance in jobs involving sales. This has been because agreeable individuals exhibit behaviours that are favoured by customers, such as being cooperative and considerate. Agreeable individuals have been found to prefer jobs where they are able to train, help, counsel and develop others (Saddoris, 1985). They have sought opportunities to work in a team where they can cooperate with others (Zhang, 2008; Saddoris, 1985). They have been found to prefer to work in environments that encourage teamwork and significant interaction with other individuals (Saddoris, 1985).

Openness to experience and job / organisational preferences.

The study by Hersen and Thomas (2006) has found that individuals who have been open to experience prefer artistic and investigative occupations. The artistic type has displayed a preference for tasks that allow them to use their imagination (Stukalina, 2008; Zhang, 2008). They prefer jobs that enable them to solve highly complex and abstract problems (Saddoris, 1985). Openness to experience has also been found to be a valid predictor of training proficiency across occupations (Mount & Barrick, 1998). Being active, sociable and open to new experiences may lead individuals to be more involved in training and consequently, learn more (Mount & Barrick, 1998; Saddoris, 1985). Open individuals have been found to be stifled in highly structured environments (Saddoris, 1985) and were thus more attracted to environments that allow independent work. They have preferred organisations that offer ambiguous challenges and complex problem-solving.

Personality Traits and Preferred Career Goals

Personality traits have an influence on life goals that individuals set (Roberts & Robins, 2000; Seibert, Crant & Kraimer, 1999). Career goals are an aspect of life goals. Career goals are the strength of an individual's intention to be active in their career field (Mayrhofer et al., 2005). It can also be seen as an individual's aspirations for who they want to become and the kind of life they wish to live (McAdams, 1994). Career goals or pursuits are directly or indirectly expressions of an individual's personality traits (Costa & McCrae, 1994).

Career anchors.

Edgar Schein's concept of career anchors (Schein, 1977) is similar to the concept of career goals. According to Schein (1996), a career anchor refers to an individual's self-concept. The self-concept consists of self-perceived talents, abilities, basic values and the developed sense of motives and needs applicable to one's career. Once an individual's self-concept has been formed, it serves as a stabilising force or an anchor (Van Rensburg, Rothmann & Rothmann, 2003). This means that should individuals be forced to make choice between two career moves, their career anchors would dictate the choice they make (Schein, 1978).

Career anchors influences career choices. It shapes what one looks for in life and determines an individual's views of the future (Igbaria, Kassicieh & Silver, 1999). Career anchors provide a focus or direction to channel employees' efforts and determine what may be done to achieve their career goals and aspirations (Igbaria et al., 1999). A career anchor is an area of stability in an individual's personality that keeps the person from deviating too far from a particular career path (Igbaria et al., 1999).

Career anchors reflect what is most important to individuals in terms of their vocations. Career anchors take a broad view of careers by considering three broad aspects. These are: lifestyle needs, security and sense of service to the community (Steele, 2009). Career anchors play an important role when employees make decisions regarding what they want from their jobs and from the organisation with whom they are employed (Van Rensburg et al., 2003). Individuals therefore set career goals based on their career anchors.

There are several different career anchors. These are: general managerial competence, technical or functional competence, security / stability, entrepreneurial creativity, service / dedication to a cause, pure challenge, autonomy and lifestyle (Steele, 2009). Individuals may have more than one career anchor, however there is usually one anchor that relates the strongest to their lives (Steele, 2009).

Career anchors and personality.

In general personality traits are reflected in preferences for career anchors and previous research has provided some support for this (Warr & Pearce, 2004). The results of an

empirical study conducted by van Rensburg, Rothmann and Rothmann (2001) has found that employees' personality characteristics were found to be related to their career anchors. In order understand the career anchors of employees, employers need to understand the relationship between career anchors and personality characteristics. The link between the personality traits and anchors are described below.

Career goals set by individuals with the different career anchors.

Individuals with a general management anchor tend to be excited by the opportunity to analyse and solve abstract problems, especially under conditions of incomplete information and uncertainty. Their career goals typically include receiving increasingly complex situations (Steele, 2009). Technical / functional competence means that one is excited by the content of the work itself. The types of career goals individuals with this anchor set are advancement in his / her technical or functional area of competence (Steele, 2009). Individuals with a security anchor will are motivated by job security and long-term attachment to their organisations. Individuals with a creativity anchor set career goals motivated by the need to build or create something that is entirely their own project (Steele, 2009). Individuals with a sense of service set career goals that involve improving the world in some manner. They want to align their work activities with helping society (Steele, 2009). Individuals with a pure challenge anchor are competitive and set goals that involve overcoming major obstacles, solving highly complex problems (Steele, 2009). Individuals with autonomous anchors seek to achieve a high flexibility in their jobs. Their aim is to set their own schedule and pace of work (Steele, 2009). Individuals with a lifestyle anchor seek to achieve a balance between their careers with lifestyle. They tend to be attracted to organisations that have strong family values and programs (Steele, 2009).

Links between the four personality traits and career anchors.

Extraversion was found to be positively related to general management, service, pure challenge, and entrepreneurial challenge (Van Rensburg et al., 2001). The Agreeable trait was linked to pure challenge as they preferred moves from one challenging project to another regardless of promotional opportunity. Van Rensburg et al., (2001) conducted a study which related to personality preferences and career anchors, found significant relationships between Conscientious (Thinking) individuals and the career anchor

security/stability and pure challenge. Individuals who measured high on Openness to Experience tend to have service, pure challenge and entrepreneurial creativity and autonomy as career anchors. This is because they use their intuition to gather information which provides meanings and relationships.

Assumptions to be investigated here

In the context of the arguments presented above the following assumptions are put forward:

- **Assumption 1**: Graduates with similar self-selected personality characteristics or traits will display similar job preferences.
- **Assumption 2**: Graduates with similar self-selected personality characteristics or traits will display similar organisational preferences.
- **Assumption 3:** Graduates with similar self-selected personality characteristics or traits will have similar career goals.

For the purposes of the present study these assumptions were further investigated.

Chapter 3: Method

The present study examined the proposed relationships between personality characteristics and job and organisational preferences, as well as with career goals. In order to determine the extent to which the present study's assumptions found empirical support, an exploratory approach was adopted. This study was cross-sectional in nature and took place within the South African context.

Research design

An exploratory research design was employed to investigate the relationship between the personality characteristics, job preferences, organisational preferences and career goals of students graduating at South African universities and Universities of Technology. This included first time graduates, as well as graduating post-graduate students.

Personality characteristics were treated as the independent variables while the rest of the constructs, i.e. job preferences, organisational preferences and career goals were treated as dependent variables. The assumption was made that personality characteristics or traits were related to each of the three dependent variables.

Sampling

Convenience sampling was used in this study. Final year university students or potential graduates were targeted because of their perceived potential to grow within and contribute towards organisations (Tomlinson, 2007; Mayrhofer et al, 2005; Lamb, 2010). A survey was made available to final year students at South African tertiary institutions and participation in the study was voluntary. The criteria for informed consent were complied with. Of all the students to whom the survey was made available, 15 066 students participated in the study. Of these students who participated, 87 percent (87%) of them were due to graduate with their first degrees, while 13 percent (13%) were due to graduate with their postgraduate degrees. Approximately 16 universities and seven Universities of Technology were represented in the sample. Table 3 tables below presents further descriptive information of the sample obtained.

Table 3

Descriptive information on the sample (n = 15 066)

Gender	% of respondents	n = 15 066
Males	46%	n = 6 930
Females	53%	n = 7 985
Missing data	1%	n = 151

Age group	% of respondents	n = 15 066
18-19 years	9%	n = 1 356
20-24 years	60%	n = 9 040
25-27 years	11%	n = 1 657
28 years and older	15%	n = 2 260
Missing data	5%	n = 753

Qualification being pursued	% of respondents	n = 15 066
National Diploma	25%	n = 3 767
First degree	52%	n = 7 835
Honours	10%	n = 1 506
Masters	3%	n = 452
Degree in Technology	10%	n = 1 506

Forty-eight and a half percent of the participants indicated that they wanted to take up full-time employment. Their salary expectations ranged between R10 000 to R15 000 per month.

Data Collection Procedure

Secondary data was used for this study. The data of an annual graduate survey was utilised. The survey comprised of 28 questions. Hard copies of the survey were made available at South African university campuses and were distributed to students registered at various South African universities and universities of Technology. Electronic surveys were also made available. Sixty percent (60%) of responses to the survey were paper-based and 40 percent (40%) were web-based. The survey was completed anonymously. Permission to use the raw data of this survey for the purpose of this study was obtained from Magnet Communications.

Measuring Instrument

The questionnaire used for the purposes of the present study was the Magnet Graduate Survey. This survey, developed independently, was conducted by Magnet Communications which is a joint venture between Universum Communications and South African entrepreneurs. The Magnet Graduate Survey is conducted annually in cooperation with the South African Graduate Recruiters Association (SAGRA).

The original purpose of this survey was to gather information regarding work and career aspirations of final year South African students in various fields of study. The survey contained twenty-eight questions. These questions related to the following aspects:

- Demographics
- Personality characteristics
- Most attractive offerings by an ideal future employer
- Most desirable attributes of an ideal future employer
- Career goals hoped to attain within three years of graduation
- Benefits most preferred in compensation package (apart from basic salary)
- Preferences in gathering information about potential employers
- Preferred companies to work for

The data from each of the questions of the survey was originally collected to try and describe preferences for particular organisations (i.e. employer brands), organisational attributes, industries, jobs features and career goals. For this study, a selection of the data was used to find associations between personality characteristics and the chosen dependent variables.

For most of the questions in the survey, a number of options were provided. From the options provided as potential responses, the participants were requested to select a maximum of three options that represented their most preferred options. For the purposes of this study, only the data obtained from four questions from the survey were utilised. The questions included were based on their relevance to the research questions and assumptions. The data selected for inclusion in this study related to: participants' self-

selected personality characteristics, their most desirable job features offered by a future employer, the most attractive organisational attributes of a future employer and career goals hoped to attain within three years of graduation. Tables 4, 5, 6 and 7 presents the personality characteristics, job features, organisational features and career goals items respectively from the survey, which were included in the present study.

Table 4

Personality characteristics items from the Magnet Graduate Survey included in the study

Which personality characteristics apply to you the most? *(Please select a maximum of <u>three</u> alternatives)*	
1. □ Accurate	10. □ Goal-oriented
2. □ Ambitious	11. □ Handles stress well
3. □ Analytical	12. □ Hard working
4. □ Creative	13. □ Leadership qualities
5. □ Curious	14. □ Responsible
6. □ Efficient	15. □ Social
7. □ Enthusiastic	16. □ Team player
8. □ Entrepreneurial	17. □ Verbal
9. □ Flexible	

The seventeen personality items in the survey are generally representative of people's personality characteristics or traits. The students were given the option to self-select their personality traits based on their perception of their own personalities. These traits were selected without theoretical constraints and were presented in terminology simple enough for participants to understand. The items in this survey suited this study's objectives as it enabled one to explore whether or not any links existed between the personality characteristics that the participants identified with and the three dependent variables.

Table 5 presents the item where students were asked to select job features they would find most attractive if offered by an employer.

Table 5

Job feature items from the Magnet Graduate Survey included in the study

Which of the following would you find most attractive if offered by an employer? *(Please select a maximum of <u>three</u> alternatives)*	
1. □ Competitive compensation	9. □ Managerial responsibility
2. □ Variety of assignments	10. □ Project-based work
3. □ Flexible working hours	11 □ Secure employment
4. □ Good career reference	12. □ Trainee programme
5. □ Increasingly challenging tasks	13. □ Mentorship
6. □ Inspiring colleagues	14. □ Rapid career advancement
7. □ Internal education	15. □ Other (please specify below)
8. □ International career opportunities	
If you selected **other**, please specify:	

Table 6 presents the item where students were required to indicate what features of a future ideal employer they would find most important for them.

Table 6

Organisational feature items from the Magnet Graduate Survey included in the study

Which of the following do you find most important when you select your future ideal employer? *(Please select a maximum of <u>three</u> alternatives)*	
1. □ Dynamic organisation	8. □ Innovation
2. □ Good / Confidence inspiring management	9. □ Market success
3. □ Exciting products / services	10. □ Recruiting only the best students
4. □ Financial strength	11. □ Strong corporate culture
5. □ Good reputation at my institution	12. □ Diverse / multicultural employees
6. □ Equality between the sexes	13. □ Corporate social responsibility
7. □ High ethical standards	14. □ Other (please specify below)
If you selected **other**, please specify:	

Table 7 presents the item where students were asked to select career goals that they hope to attain within three years of graduation.

Table 7

Career goals items from the Magnet Graduate Survey included in the study

What career goals do you hope to attain within three years of graduation?

(Please select a maximum of <u>three</u> alternatives)

1.	□ Work internationally	8.	□ Become a specialist
2.	□ Work with increasingly challenging tasks	9.	□ Contribute to society
3.	□ Reach a managerial level	10.	□ Balance personal life and career
4.	□ Develop new products	11.	□ Manage projects
5.	□ Influence corporate strategies	12.	□ Rotate jobs within a company
6.	□ Build a sound financial base	13.	□ Other (please specify below)
7.	□ Start a business		

If you selected **other**, please specify:

Data Analysis

The data obtained from the responses to the four items presented above were analysed using various statistical procedures. The first step in analysing the data was the use of descriptive statistics to summarise the sample. Because the data was categorical or nominal, descriptive statistics were limited to frequency counts, i.e. of the number of responses in each category and the calculation of the mode for each question (Hair, Babin, Money & Samouel, 2003).

The second step on the data analysis was the use of correspondence analysis (CA), principal component analysis (PCA) and classification trees. These techniques were appropriate to use for this data mainly because of the exploratory nature of this study and the level of measurement available (i.e. nominal). These techniques allowed for the identification of associations between job features, organisational features, career goals and personality characteristics. These techniques are also appropriate to use with large sample sizes, as was the case in this study (n = 15 066). Their use allows for ease of identification of patterns within large amounts of data (Hair, Black, Babin & Anderson, 2010).

Correspondence analysis (CA)

Correspondence analysis (CA) is a statistical technique that examines the relationships between categorical variables of nominal data (Hair, Black, Babin & Anderson, 2010). The objective of a CA is to establish the extent of associations between two or more objects. This means that it measures how closely an object of one variable corresponds with an object of another variable. It allows one to draw inferences from the underlying dimensions evaluated. It is a compositional method which means that it shows the overall similarity or preference between attributes selected by respondents (Hair, Black, Babin & Anderson, 2010).

The construction of a correspondence analysis map is based on a set of observed frequencies and expected frequencies (Dorbach, 2011). The frequencies are used to compute quantities called Pearson residuals (Dorbach, 2011). The Pearson residual is the weighted difference between the observed and expected frequencies (Dorbach, 2011). The size and pattern of the deviations of the Pearson residuals from zero provides information regarding the nature of the associations (Dorbach, 2011). Residuals that are large and positive indicate that the observed frequency is larger than expected i.e. if there was no relationship (Dorbach, 2011). Large and negative residuals indicate that the observed frequency is smaller than expected i.e. if there was no relationship (Dorbach, 2011). All the Pearson residuals are then collected into a single matrix or frequency table (Dorbach, 2011).

The Pearson residuals can be easily displayed in frequency tables using two dimensions. In many other cases, there could be many more than two dimensions but that would be difficult to display easily (Dorbach, 2011). The dimension-reduction technique can therefore be carried out to reduce the size of the table (Dorbach, 2011). This technique has been used in this study to construct a CA map. In order to display the matrix or frequency tables in two dimensions a technique known as singular value decomposition (SVD) was carried out.

The SVD consists of total number of dimensions and eigenvalues which measures the contribution of each dimension to the total amount of variation explained (Dorbach, 2011). The total amount of variation in a frequency table is called the total inertia (Dorbach, 2011). The SVD also consists of co-ordinates for plotting the row points, which are the categories of

the row variable as well as co-ordinates for plotting the column points, which are the categories of the column variable (Dorbach, 2011). As only two dimensions are being composed, the SVD technique provides the best two-dimensional approximation (Dorbach, 2011). In order to present a graphical display in two dimensions, row and columns are then plotted on a graph.

Preferences and similarities between attributes are displayed in a perceptual map. A perceptual map is a visual representation of respondents' perceptions of objects on two or more dimensions (Hair, Black, Babin & Anderson, 2010). Each object is positioned on the map so that its position reflects its preference to other objects on the map. Objects that are plotted close to each other can be said to correspond closely to one another. An example from this study would be that the different objects of personality characteristics (e.g. *ambitious*) would be positioned on the map closer or further from job feature objects (e.g. *competitive compensation*) depending on the extent to which the two objects correspond. If *ambitious* were positioned very close to *competitive compensation* it would mean that participants who have selected *ambitious* as one of their personality traits would be more attracted to jobs offering *competitive compensation*. The inverse is true if objects are plotted at a great distance from other objects. The options provided for each of the four items on the survey would therefore be referred to as the objects.

The objects are plotted on dimensions. Dimensions are unobserved characteristics that allow the objects to be displayed in a multidimensional space (Hair, Black, Babin & Anderson, 2010). This replicates the respondent's similarity judgments. The characteristics that define these dimensions are not known but can be assumed to be constructs given by personality constructs, job features, organisational features and career goals. In this study three separate analyses were conducted: personality characteristics (P) and organisational attributes (O), personality characteristics (P) and job features (F), personality characteristics (P) and career goals (C). These three analyses are represented in three perceptual maps each consisting of two dimensions (i.e. P-O, P-F and P-C).

Principal component analysis (PCA)

Principal component analysis (PCA) is an aspect of factor analysis and it is an interdependence statistical approach used to analyse the inter-relationships among large numbers of variables (Hair, Black, Babin & Anderson, 2010; Hair, Babin, Money & Samouel, 2003). It explains these variables in terms of common underlying dimensions or factors. The objective of a PCA is to condense the number of original variables into a smaller set with minimal loss of information (Hair, Black, Babin & Anderson, 2010; Hair, Babin, Money & Samouel, 2003; Jolliffe, 2002). The smaller set of unmeasured or latent variables are called the principal components (Abdi & Williams, 2010; Hair, Babin, Money & Samouel, 2003; Jolliffe, 2002).

PCA attempts to explain as much of the original variance in the dataset as possible with fewer principal components (Hair, Babin, Money & Samouel, 2003). It is based on all variance types, such as common variance, error variance and unique variance (Hair, Babin, Money & Samouel, 2003). PCA can also represent patterns of similarity between observations and variables by displaying them as points in maps (Abdi & Williams, 2010). One advantage of PCA is that it extracts the most important information from a data set and simplifies its description (Abdi & Williams, 2010).

In this study a PCA was performed on the seventeen personality variables. The clustering of respondents was based on the first twelve principal components of their personality correspondents, and the subsequent use of those clusters in the CART (classification and regression tree) analysis.

Classification trees (CT)

The classification tree technique is a collection of statistical techniques that can be used with a single categorical dependent variable and with numeric or categorical independent variables (Dorbach, 2011). Classification trees are more accurately defined as a collection of algorithms rather than a single technique, and are a highly visual way of representing results (Dorbach, 2011). Two of the algorithms used to construct classification trees are the classification and regression trees (CART) algorithm and the chi-squared automatic

interaction detection (CHAID) algorithm (Dorbach, 2011). The interpretation of the trees is the same regardless of which algorithm is used to build the tree (Dorbach, 2011).

The CART algorithm was used in this study to build the trees. The CART algorithm is a binary splitting algorithm (Dorbach, 2011). Each parent node is partitioned into only two child nodes (Dorbach, 2011). Each node is either a terminal node or has two child nodes. The partitioning of the tree is based on a measure of the diversity or heterogeneity with respect to the outcome variable in a node (Dorbach, 2011). In this case personality characteristics is the outcome variable. This is known as the reduction in diversity criterion (Dorbach, 2011).

Classification tree algorithms begin by placing all objects together in a root node. A node is a name for a grouping of objects that classification trees creates based on combinations of the independent variables. The root node is the name given to the group that is created before considering any independent variables or by simply grouping together everyone in the sample (Dorbach, 2011).

In this analysis, the fifty clusters that the subjects have been assigned to which was based on the first twelve components of the PCA of their personality characteristics, were sequentially split. This split was according to their responses to various job features, organisational attributes and career goals. The splits or branches which occur (based on which questions are important, etc.) are determined using the gini coefficient. The gini coefficient is also known as the diversity index. The diversity index of a node is the probability that any two objects chosen at random (with replacement) from all those in the node will belong to different groups. The gini coefficient ideally splits the groups into smaller, more pure, groups. There is thus less variation within groups and more between groups.

This then builds a tree with various branches. This tree was constructed with the tree function from the R package tree. Looking at the deviance for various tree sizes enables one to select the optimal number of branches for the tree. The final leaves of this classification tree were then looked at. In that leaf there may be one or five or x number of the original

clusters. The proportion of responses to particular personality characteristics within the clusters in that leaf is then determined. One is thus able to relate the personality characteristics to the responses for job features, organisational features and career goals.

Classification trees are recursive algorithms (Dorbach, 2011). They begin with all objects in the root node and then split this root node into partitions (Dorbach, 2011). Each of the partitions may be split further into finer partitions, and then these second-level partitions can be split even further (Dorbach, 2011). The problem with too much splitting is that it can lead to results that cannot be generalised to other datasets. This is referred to as the stopping rule (Dorbach, 2011). In this analysis the tree was allowed to be expanded fully before trimming back. This is known as the bonsai approach (Dorbach, 2011). The bonsai technique is a stopping rule that attempt to limit the growth of the tree before it gets too large (Dorbach, 2011). At each partitioning it is identified whether the partitioning is useful in terms of some criteria. If a split is identified to be useful, the node will be split. If it is deemed not useful, the node will not be split any further and becomes terminal (Dorbach, 2011).

In order to interpret the classification trees, the leaves of the tree were related with the personality characteristics. In order to relate the leaves of the tree with the personality characteristics a weighted mean was calculated as follows: The tree output gives a vector (50 x 1) of proportion of subjects in this node by cluster. The i-th personality characteristic for subject j is weighted, by proportion k if subject j belongs to cluster k. The mean over all n subjects (j) for each characteristic (i) was then calculated.

At each leaf, the proportions are calculated and depicted in a bar chart. In terms of interpretation, the personality characteristics bar charts for all leaves follow more or less the same pattern. That is because some characteristics are selected very often and some very seldom. One has to look for differences in the lengths of the bars. To ease this comparison, each column was standardised by the overall mean for that column over all subjects. The longer the bar, the larger the proportion of subjects in this leaf that selected this job feature, organisational attribute and career goal than overall in the whole sample.

This analysis was repeated for each group of variables separately (job features, organisational features and career goals).

The final leaves of this classification tree are looked at. This means that each final point after a split / branch is looked at, and in that leaf there may be a number of the original clusters. The proportion of responses to particular personality characteristics within the clusters in that leaf is then determined. One is thus able to relate the personality characteristics to the responses for job features, organisational attributes and career goals.

Chapter 4: Results

The first section of this chapter uses correspondence analysis (CA) to identify the strength of the associations between personality characteristics and the three dependent variables, i.e. job features, organisational features and career goals. The method of interpreting the maps is explained together with an example of how each map was interpreted. The first part of the second section is a brief description of the principal component analysis (PCA). The result of the PCA biplot is presented. Given the large amount of data from the survey no detailed explanation of the PCA biplot is provided, however the plot only serves to provide the background information required in order to construct the classification trees. The second part of section two provides a report on the three classification trees constructed for personality characteristics and each of the three dependent variables. An explanation of how each branch was selected is also provided. The final leaves of the classification trees are reported in terms of relating the personality characteristics to the proportion of responses for each of the items of the dependent variables.

Correspondence Analysis (CA)

Three separate correspondence analyses were conducted between the personality characteristics and each of the three dependent variables, i.e. job features, organisational features and career goals. For each analysis, frequency tables were constructed, with the rows representing the personality characteristics and the columns representing the characteristics of one of the three dependent variables. The R package *ca* was used to perform the correspondence analyses of the frequency tables. The values in each cell of the table counted the number of times that the respective personality characteristics were chosen together with the category of the dependent variable. The results presented later in this section are the three correspondence (or perceptual) maps obtained from the individual analyses.

Interpretation of each map.

Each correspondence map has been accompanied by frequency tables. The first table reports the principal inertias (eigenvalues) for personality characteristics and the dependent variable. The second and third tables are the inertia, frequencies and chi-squared results for

personality characteristics and the dependent variable. These two tables are presented for both rows and columns.

Eigenvalues.

Eigenvalues measure the contribution of each dimension to the total amount of explained variation (Dorbach, 2011). If the sum of the first few eigenvalues are close to the total represented, i.e. one hundred percent, then the quality of the analysis is high (Addinsoft, 2011). If the quality of analysis is high, then the map can be used to interpret the data (Addinsoft, 2011). For each of the three analyses in this study the sum of first three eigenvalues are reported in order to determine the quality of the analyses.

Mass.

Each element personality characteristic as well as the dependent variable element has a mass associated with it. The mass is the relative overall response frequency. The row and column totals of the matrix of frequencies are called the row mass and row columns respectively (Dorbach, 2011). The row and column masses show the proportion of all responses in each row and column (Dorbach, 2011). This means that the mass of each element shows how one unit of mass is distributed across the cells (Dorbach, 2011). Computationally, the programme computes the relative frequencies for the frequency tables (Statsoft, 2011). The cross-tabulation tables are standardised so that the relative frequencies across all the cells sum to 1.0 (Statsoft, 2011). Each element is divided by the row and column totals. The tables for each of the three analyses indicate that in terms of personality characteristics, most participants selected ambitious (0.1) and hardworking (0.13).

Inertia.

The total amount of variation in a frequency table is called the total inertia (Dorbach, 2011). The entries in the table of relative frequencies represent the distances between individual rows and columns.

Dimensions.

Each frequency table consists of rows and columns. The columns represent the dependent variables, i.e. job features, organisational features and career goals, and the rows represent personality characteristics. The row and column distributions are called profiles or dimensions (Dorbach, 2011). These represent the row or column categories, which are called elements. An example of a personality characteristic element would be *accurate*. It is the association among these elements that the correspondence analysis map portrays. The rows represents dimension one and the columns represent dimension two. In each of the correspondence maps, the seventeen personality characteristics are plotted together with each of the dependent variable elements. In each map, personality characteristics are plotted close to the columns of X with which they correspond.

In each correspondence map the two profiles or dimensions have an inertia percentage which explains the contribution of each variable. The total variation is explained together by all the dimensions used in the map. The variance is calculated by adding up the percentage of inertia values for all the visible dimensions. In each map it is important to establish the amount of variation explained by each dimension. The attention given to a dimension should be proportional to the amount of variation explained by it. The inertia percentage is also referred to as the eigenvalue which reflects the relative importance of the dimensions. The first dimension always explains the most inertia (variance) and has the largest eigenvalue. Where associations exist on both dimensions, it can be considered strong enough to be meaningful.

In each correspondence map there are points on each dimension that cannot be involved in any associations. In this case, any points that lie between –0.02 and +0.02 on dimensions one or two cannot show any meaningful associations on that dimension and will therefore be ignored. This is because the relative contribution made by the variable plotted between –0.02 and +0.02 is very low, particularly where the inertia of a dimension is low. The further a point is from the centre (0), the larger the contribution it makes to the inertia of the dimensions.

Distances between points on the map, for example between personality characteristics and job features, are interpreted separately on each dimension. Two points may therefore be close together on one dimension and hence be associated with each other but not appear close together on the other dimension. Points that are close together on both dimensions are considered to be more closely related than those that are close together on only one.

This method is purely an exploratory technique and not intended to establish any formal relationships. The correspondence maps is interpreted in terms of how close a personality characteristic is plotted with a job feature, organisational, feature or career goal on each and both dimensions. If, for example, a personality characteristic is plotted in close proximity to a particular job feature, it means that they correspond closely to each other. The maps also enable one to compare which personality characteristics corresponds more closely to particular job features, organisational features or career goals than others. In each map personality characteristics are indicated by the letter P. Table 8 is the list of personality characteristics and provides a guideline for identifying the specific personality characteristic element.

Table 8

Personality elements

P1 Accurate	P10 Goal-oriented
P2 Ambitious	P11 Handles stress well
P3 Analytical	P12 Hard working
P4 Creative	P13 Leadership qualities
P5 Curious	P14 Responsible
P6 Efficient	P15 Social
P7 Enthusiastic	P16 Team player
P8 Entrepreneurial	P17 Verbal
P9 Flexible	

Personality characteristics and job features

Table 9 consists of the list of job features and is a guideline for identifying the specific job feature element.

Table 9

Job feature elements

J1 Competitive compensation	J9 Managerial responsibility
J2 Variety of assignments	J10 Project-based work
J3 Flexible working hours	J11 Secure employment
J4 Good career reference	J12 Trainee programme
J5 Increasingly challenging tasks	J13 Mentorship
J6 Inspiring colleagues	J14 Rapid career advancement
J7 Internal education	J15 Other (please specify below)
J8 International career opportunities	

Table 10 presents the principal inertias (eigenvalues) for the correspondence analyses for personality characteristics and job features. The job feature element J15 (*Other*) has been ignored because of the large number of responses to this survey.

Table 10

Principal inertias (eigenvalues) for personality characteristics and job features

Principal Inertias (eigenvalues)							
	1	2	3	4	5	6	7
Value	0.003651	0.002052	0.001676	0.000694	0.000389	0.00027	0.000157
Percentage	39.64%	22.28%	18.20%	7.54%	4.22%	2.93%	1.70%
	8	9	10	11	12	13	
Value	0.000138	8.10E-05	4.30E-05	3.80E-05	1.50E-05	6.00E-06	
Percentage	1.50%	0.88%	0.47%	0.41%	0.16%	0.07%	

In Table 10, the sum of the first three eigenvalues is approximately eighty percent. This means that the map can be used to interpret the data as the quality of analysis is high. Tables 11 and 12 present the inertia, frequency table and chi-squared results of the correspondence analysis for personality characteristics and job features. Table 11 represents the rows while Table 12 represents the columns.

Table 11

Inertia, frequency table and chi-squared results for personality characteristics and job features: rows

	Rows						
	P1	P2	P3	P4	P5	P6	P7
Mass	0.040636	0.108616	0.056654	0.072251	0.038517	0.037189	0.041763
ChiDist	0.134917	0.048819	0.151165	0.112073	0.101014	0.102466	0.068658
Inertia	0.00074	0.000259	0.001295	0.000907	0.000393	0.00039	0.000197
Dim.1	-0.11892	-0.26015	2.185328	0.82731	0.348655	0.708482	0.089976
Dim.2	-2.20941	-0.10227	-1.24125	1.454382	0.851024	-1.74078	1.113628
	P8	P9	P10	P11	P12	P13	P14
Mass	0.028924	0.044016	0.072797	0.042814	0.13104	0.072932	0.097441
ChiDist	0.185177	0.090721	0.076749	0.058888	0.08058	0.076283	0.086797
Inertia	0.000992	0.000362	0.000429	0.000148	0.000851	0.000424	0.000734
Dim.1	2.639402	-0.18382	0.460904	-0.39891	-1.2087	0.76326	-1.19558
Dim.2	1.144658	1.565059	-0.08034	-0.05501	-0.35734	-0.72157	-0.54427
	P15	P16	P17				
Mass	0.044849	0.050247	0.019313				
ChiDist	0.102634	0.092443	0.097762				
Inertia	0.000472	0.000429	0.000185				
Dim.1	-0.87108	-0.06086	-0.90114				
Dim.2	1.599656	0.659363	0.279713				

Table 12

Inertia, frequency table and chi-squared results for personality characteristics and job features: columns

	Columns						
	J1	J2	J3	J4	J5	J6	J7
Mass	0.107228	0.131469	0.053005	0.123481	0.060463	0.067197	0.10463
ChiDist	0.071622	0.061397	0.11954	0.055718	0.101728	0.140926	0.084112
Inertia	0.00055	0.000496	0.000757	0.000383	0.000626	0.001335	0.00074
Dim.1	0.908841	-0.84121	0.754843	-0.2643	-1.15925	-2.12495	0.30004
Dim.2	-0.40394	0.078296	1.038158	-0.65378	-0.47212	1.148492	-1.57022
	J8	J9	J10	J11	J12	J13	J14
Mass	0.085006	0.073041	0.019397	0.060395	0.058958	0.052786	0.002943
ChiDist	0.138694	0.07288	0.139741	0.097314	0.112185	0.09707	0.191528
Inertia	0.001635	0.000388	0.000379	0.000572	0.000742	0.000497	0.000108
Dim.1	1.989112	0.36256	-0.16114	0.466039	-0.52673	-0.13822	1.704903
Dim.2	1.323959	-0.08752	-2.35395	-0.74263	1.397933	1.329736	2.08523

Table 12 indicates that in terms of the mass for the elements of job features, most of the participants selected *variety of assignments* (J2 = 0.13) and *good career reference* (J4 = 0.12). In Figure 1 below, the personality characteristics (P) elements are plotted together with the fifteen job feature elements. In Figure 1 job features is indicated by the letter J.

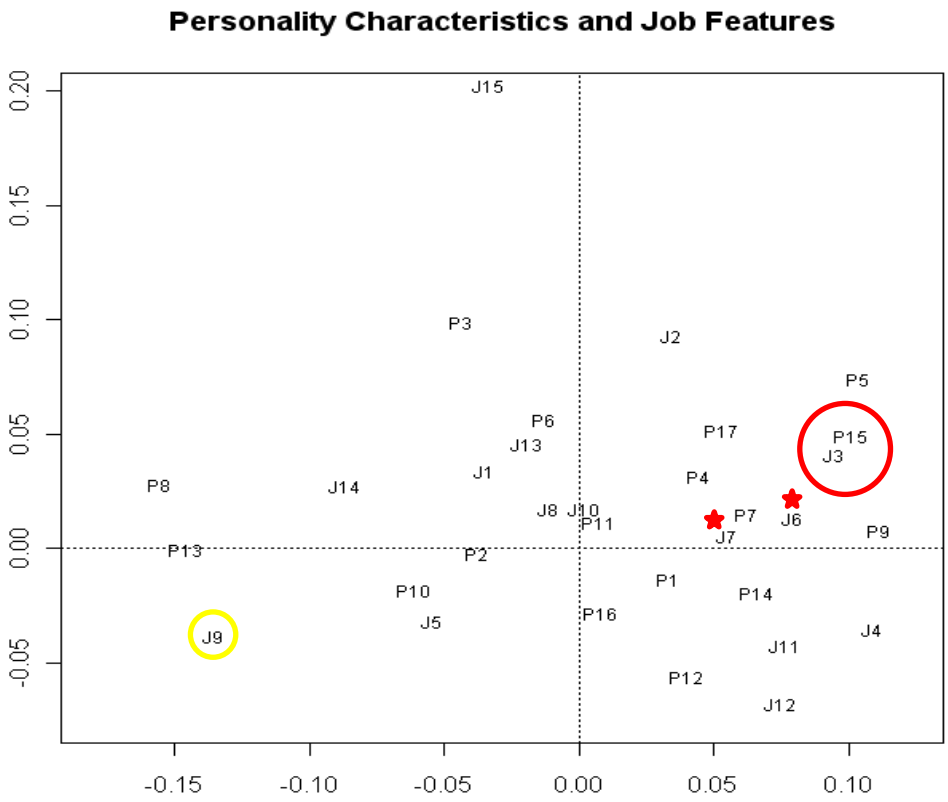

Figure 1. Correspondence map for personality characteristics and job features

With reference to Figure 1, this is an example of how each correspondence map has been interpreted: Personality characteristic 15 (*social*) is most related to job feature 3 (*flexible working hours*) and is more related to job features 6 (*inspiring colleagues*) and (less so) 7 (*internal education*), than what it is related to job feature 9 (*managerial responsibility*).

The results for each analysis are presented in tables which indicate the strength of association between the personality characteristic elements and the dependent variable elements. The strength of association between the elements is colour coded and is described as being strong (green), moderate (amber) or weak (red). The colour codes have been included for ease of identifying the strength of association.

Interpretation of Figure 1

The following points do not form any meaningful associations on dimension 1 as they lie between -0.02 and 0.02:

- Personality characteristics

P6 (*efficient*); P11 (*handles stress well*); P16 (*team player*)

- Job features

J10 (*project-based work*); J8 (*international career opportunities*); J13 (*mentorship*)

In applying the interpretation rules of correspondence maps, Table 13 presents the results for the observations made for Figure 1:

Table 13

Personality characteristics and job features on dimension 1

Personality characteristic	Job feature	Strength of association
P1 (Accurate)	J2 (Variety of assignments)	Weak
P1 (Accurate)	J7 (Internal education)	Weak
P1 (Accurate)	J11 (Secure employment)	Moderate
P1 (Accurate)	J12 (Trainee programme)	Moderate
P1 (Accurate)	J6 (Inspiring colleagues)	Moderate
P2 (Ambitious)	J1 (Competitive compensation)	Weak
P2 (Ambitious)	J5 (Increasingly challenging tasks)	Weak
P2 (Ambitious)	J14 (Rapid career advancement)	Moderate
P3 (Analytical)	J5 (Increasingly challenging tasks)	Weak
P3 (Analytical)	J1 (Competitive compensation)	Weak
P3 (Analytical)	J14 (Rapid career advancement)	Moderate
P4 (Creative)	J2 (Variety of assignments)	Weak
P4 (Creative)	J7 (Internal education)	Weak
P4 (Creative)	J6 (Inspiring colleagues)	Moderate
P4 (Creative)	J11 (Secure employment)	Moderate
P4 (Creative)	J3 (Flexible working hours)	Moderate
P4 (Creative)	J12 (Trainee programme)	Moderate
P5 (Curious)	J3 (Flexible working hours)	Strong
P5 (Curious)	J4 (Good career reference)	Strong
P5 (Curious)	J12 (Trainee programme)	Moderate

P5 (Curious)	J11 (Secure employment)	Moderate
P5 (Curious)	J7 (Internal education)	Moderate
P5 (Curious)	J6 (Inspiring colleagues)	Strong
P7 (Enthusiastic)	J7 (Internal education)	Moderate
P7 (Enthusiastic)	J6 (Inspiring colleagues)	Moderate
P7 (Enthusiastic)	J12 (Trainee programme)	Moderate
P7 (Enthusiastic)	J11 (Secure employment)	Moderate
P7 (Enthusiastic)	J2 (Variety of assignments)	Moderate
P7 (Enthusiastic)	J3 (Flexible working hours)	Moderate
P8 (Entrepreneurial)	J9 (Managerial responsibility)	Strong
P8 (Entrepreneurial)	J14 (Rapid career advancement)	Moderate
P9 (Flexible)	J4 (Good career reference)	Strong
P9 (Flexible)	J3 (Flexible working hours)	Strong
P9 (Flexible)	J11 (Secure employment)	Moderate
P9 (Flexible)	J12 (Trainee programme)	Moderate
P9 (Flexible)	J6 (Inspiring colleagues)	Moderate
P10 (Goal-oriented)	J5 (Increasingly challenging tasks)	Moderate
P10 (Goal-oriented)	J1 (Competitive compensation)	Weak
P10 (Goal-oriented)	J14 (Rapid career advancement)	Moderate
P12 (Hard working)	J2 (Variety of assignments)	Weak
P12 (Hard working)	J7 (Internal education)	Weak
P12 (Hard working)	J6 (Inspiring colleagues)	Moderate
P12 (Hard working)	J11(Secure employment)	Moderate
P12 (Hard working)	J12 (Trainee programme)	Moderate
P13 (Leadership qualities)	J9 (Managerial responsibility)	Strong
P13 (Leadership qualities)	J14 (Rapid career advancement)	Moderate
P14 (Responsible)	J6 (Inspiring colleagues)	Moderate
P14 (Responsible)	J11(Secure employment)	Moderate
P14 (Responsible)	J12 (Trainee programme)	Moderate
P14 (Responsible)	J7 (Internal education)	Moderate
P14 (Responsible)	J3 (Flexible working hours)	Moderate
P14 (Responsible)	J2 (Variety of assignments)	Moderate
P15 (Social)	J3 (Flexible working hours)	Strong
P15 (Social)	J4 (Good career reference)	Strong
P15 (Social)	J6 (Inspiring colleagues)	Moderate
P15 (Social)	J11(Secure employment)	Moderate
P15 (Social)	J12 (Trainee programme)	Moderate
P15 (Social)	J7 (Internal education)	Moderate

P17 (Verbal)	J7 (Internal education)	Weak
P17 (Verbal)	J2 (Variety of assignments)	Weak
P17 (Verbal)	J3 (Flexible working hours)	Moderate
P17 (Verbal)	J11(Secure employment)	Moderate
P17 (Verbal)	J12 (Trainee programme)	Moderate

The following points do not form any meaningful associations on dimension 2 as they lie between -0.02 and 0.02:

- Personality characteristics

P1 (*accurate*); P2 (*ambitious*); P7 (*enthusiastic*); P9 (*flexible*); P10 (*goal-oriented*); P11 (*handles stress well*); P13 (*leadership qualities*); P14 (*responsible*)

- Job features

J6 (*inspiring colleagues*); J7 (*internal education*); J8 (*international career opportunities*); J10 (*project-based work*);

Table 14

Personality characteristics and job features on dimension 2

Personality characteristic	Job feature	Strength of association
P3 (Analytical)	J2 (Variety of assignments)	Moderate
P3 (Analytical)	J3 (Flexible working hours)	Weak
P3 (Analytical)	J13 (Mentorship)	Weak
P3 (Analytical)	J1 (Competitive compensation)	Weak
P3 (Analytical)	J14 (Rapid career advancement)	Weak
P4 (Creative)	J3 (Flexible working hours)	Weak
P4 (Creative)	J1 (Competitive compensation)	Weak
P4 (Creative)	J13 (Mentorship)	Weak
P4 (Creative)	J14 (Rapid career advancement)	Weak
P5 (Curious)	J2 (Variety of assignments)	Moderate
P5 (Curious)	J3 (Flexible working hours)	Weak
P5 (Curious)	J13 (Mentorship)	Weak
P5 (Curious)	J1 (Competitive compensation)	Weak
P6 (Efficient)	J13 (Mentorship)	Weak
P6 (Efficient)	J3 (Flexible working hours)	Weak
P6 (Efficient)	J1 (Competitive compensation)	Weak

P6 (Efficient)	J14 (Rapid career advancement)	Weak
P8 (Entrepreneurial)	J14 (Rapid career advancement)	Weak
P8 (Entrepreneurial)	J1 (Competitive compensation)	Weak
P8 (Entrepreneurial)	J13 (Mentorship)	Weak
P8 (Entrepreneurial)	J3 (Flexible working hours)	Weak
P12 (Hard working)	J12 (Trainee programme)	Moderate
P12 (Hard working)	J11(Secure employment)	Weak
P12 (Hard working)	J4 (Good career reference)	Weak
P12 (Hard working)	J9 (Managerial responsibility)	Weak
P12 (Hard working)	J5 (Increasingly challenging tasks)	Weak
P15 (Social)	J3 (Flexible working hours)	Weak
P15 (Social)	J13 (Mentorship)	Weak
P15 (Social)	J1 (Competitive compensation)	Weak
P15 (Social)	J14 (Rapid career advancement)	Weak
P16 (Team player)	J5 (Increasingly challenging tasks)	Weak
P16 (Team player)	J11(Secure employment)	Weak
P16 (Team player)	J4 (Good career reference)	Weak
P16 (Team player)	J9 (Managerial responsibility)	Weak
P16 (Team player)	J12 (Trainee programme)	Weak
P17 (verbal)	J13 (Mentorship)	Weak
P17 (verbal)	J3 (Flexible working hours)	Weak
P17 (verbal)	J1 (Competitive compensation)	Weak
P17 (verbal)	J2 (Variety of assignments)	Weak
P17 (verbal)	J14 (Rapid career advancement)	Weak

It is important to note that dimensions are not all equally important to the interpretation of associations (Dorbach, 2011). Dimension 1 always explains more variation than any subsequent dimensions (Dorbach, 2011).

The following points do not form any meaningful associations on both dimensions as they lie between -0.02 and 0.02:

- Personality characteristics

P1 (*accurate*); P2 (*ambitious*); P6 (*efficient*); P7 (*enthusiastic*); P9 (*flexible*); P10 (*goal-oriented*); P11 (*handle stress well*); P13 (*leadership qualities*); P14 (*responsible*); P16 (*team player*)

- Job features

J6 (*inspiring colleagues*); J7 (*internal education*); J8 (*international career opportunities*); J10 (*project-based work*); J13 (*mentorship*)

Table 15

Personality characteristics and job features on both dimensions

Personality characteristic	Job feature	Strength of association
P4 (Creative)	J2 (Variety of assignments)	Weak
P12 (Hard working)	J11(Secure employment)	Weak
P12 (Hard working)	J12 (Trainee programme)	Moderate
P15 (Social)	J3 (Flexible working hours)	Strong
P17 (verbal)	J2 (Variety of assignments)	Weak

Personality characteristics and organisational features

Table 16 consists of the list of organisational features and is a guideline for identifying the specific organisational feature element.

Table 16

Organisational feature elements

O1 Dynamic organisation	O8 Innovation
O2 Good / Confidence inspiring management	O9 Market success
O3 Exciting products / services	O10 Recruiting only the best students
O4 Financial strength	O11 Strong corporate culture
O5 Good reputation at my institution	O12 Diverse / multicultural employees
O6 Equality between the sexes	O13 Corporate social responsibility
O7 High ethical standards	O14 Other (please specify below)

Table 17 presents the principal inertias (eigenvalues) for the correspondence analyses for personality characteristics and organisational features. The organisational feature element O14 (*Other*) has been ignored because of the large number of responses to this survey.

Table 17

Principal inertias (eigenvalues) for personality characteristics and organisational features

Principal Inertias (eigenvalues):							
	1	2	3	4	5	6	7
Value	0.005225	0.001646	0.001115	0.000886	0.000682	0.00054	0.000333
Percentage	48.07%	15.14%	10.26%	8.15%	6.27%	4.97%	3.06%
	8	9	10	11	12	13	14
Value	0.000164	0.000144	7.80E-05	3.60E-05	1.10E-05	7.00E-06	3.00E-06
Percentage	1.51%	1.32%	0.72%	0.33%	0.10%	0.06%	0.03%

In Table 17, the sum of the first three eigenvalues is approximately seventy-three percent. This means that the map can be used to interpret the data as the quality of analysis is high. Tables 18 and 19 present the inertia, frequency table and chi-squared results of the correspondence analysis for personality characteristics and organisational features. Table 18 represents the rows while Table 19 represents the columns.

Table 18

Inertia, frequency table and chi-squared results for personality characteristics and organisational features: rows

Rows:							
	P1	P2	P3	P4	P5	P6	P7
Mass	0.04066	0.106892	0.056379	0.071722	0.039509	0.037564	0.042057
ChiDist	0.11332	0.073829	0.128265	0.095568	0.126595	0.111496	0.083934
Inertia	0.000522	0.000583	0.000928	0.000655	0.000633	0.000467	0.000296
Dim.1	0.367118	-0.61399	-0.69371	0.524183	1.348268	-0.26701	0.77529
Dim.2	-0.46821	-0.19241	2.300026	0.638925	1.67711	1.250431	0.223569
	P8	P9	P10	P11	P12	P13	P14
Mass	0.029305	0.044941	0.072816	0.042932	0.129579	0.072351	0.09708
ChiDist	0.177948	0.126887	0.080501	0.047809	0.075504	0.165504	0.076843
Inertia	0.000928	0.000724	0.000472	0.000098	0.000739	0.001982	0.000573
Dim.1	-2.2401	1.454593	-0.96695	-0.01406	0.43019	-2.13983	0.795215
Dim.2	0.548338	0.052019	-0.59238	0.135647	-1.52373	-0.15494	-0.61658
	P15	P16	P17				
Mass	0.045244	0.05057	0.0204				
ChiDist	0.130543	0.082553	0.086893				
Inertia	0.000771	0.000345	0.000154				
Dim.1	1.270925	-0.00887	0.611914				
Dim.2	1.065139	-0.8376	1.130214				

Table 19

Inertia, frequency table and chi-squared results for personality characteristics and organisational features: columns

				Columns:			
	O1	O2	O3	O4	O5	O6	O7
Mass	0.09985	0.049712	0.096974	0.053323	0.084703	0.055145	0.045432
ChiDist	0.085234	0.110742	0.107503	0.126831	0.093186	0.113058	0.067374
Inertia	0.000725	0.00061	0.001121	0.000858	0.000736	0.000705	0.000206
Dim.1	-0.56467	0.398372	1.227233	1.425091	-0.83139	1.013252	0.678739
Dim.2	0.68659	2.143129	0.860882	-1.00843	-0.93059	0.180875	-0.01539
	O8	O9	O10	O11	O12	O13	O14
Mass	0.116475	0.078666	0.052278	0.091255	0.048479	0.048724	0.076484
ChiDist	0.049666	0.161325	0.091783	0.105638	0.120897	0.075893	0.110852
Inertia	0.000287	0.002047	0.00044	0.001018	0.000709	0.000281	0.00094
Dim.1	-0.23359	-1.95676	-0.08268	0.944496	0.92255	-0.37904	-1.31082
Dim.2	0.279902	-1.08142	0.27749	-1.19625	-1.82073	0.980771	0.525821
	O15						
Mass	0.0025						
ChiDist	0.272884						
Inertia	0.000186						
Dim.1	-0.57701						
Dim.2	4.852992						

Table 19 indicates that in terms of the mass for the elements of organisational features, most of the participants selected innovation (O8 = 0.11) and dynamic organisation (O1 = 0.099). In Figure 2 below, the personality characteristics (P) elements are plotted together with the fourteen organisational feature elements. In Figure 2 organisational features are indicated by the letter O.

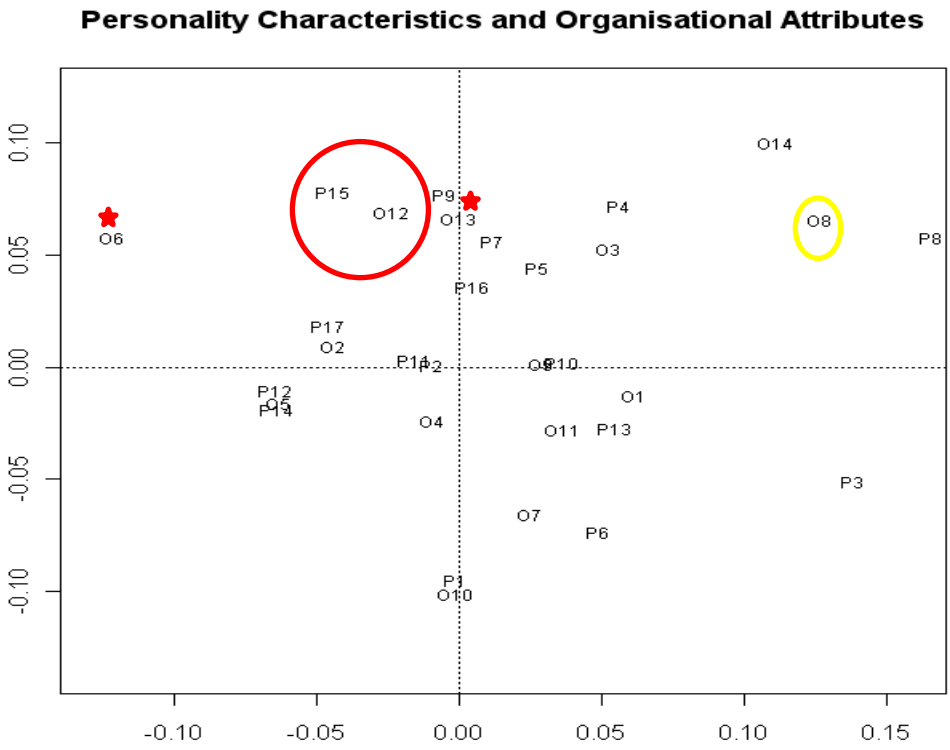

Figure 2. Correspondence map for personality characteristics and organisational features

Interpretation of Figure 2

The following points do not form any meaningful associations on dimension 1 as they lie between -0.02 and 0.02:

- Personality characteristics

P1 (*accurate*); P2 (*ambitious*); P5 (*curious*); P7 (*enthusiastic*); P9 (*flexible*); P11 (*handles stress well*); P16 (*team player*)

- Organisational features

O7 (*high ethical standards*); O10 (*recruiting only the best students*); O4 (*financial strength*); O12 (*diverse / multicultural employees*); O13 (*corporate social responsibility*)

In applying the interpretation rules of correspondence maps, Table 20 presents the results for the observations made for Figure 2:

Table 20

Personality characteristics and organisational features on dimension 1

Personality characteristic	Organisational feature	Strength of association
P3 (Analytical)	O8 (Innovation)	Strong
P3 (Analytical)	O4 (Financial strength)	Strong
P4 (Creative)	O3 (Exciting products / services)	Moderate
P4 (Creative)	O1 (Dynamic organisation)	Moderate
P4 (Creative)	O11 (Strong corporate culture)	Weak
P4 (Creative)	O9 (Market success)	Weak
P6 (Efficient)	O1 (Dynamic organisation)	Moderate
P6 (Efficient)	O9 (Market success)	Weak
P6 (Efficient)	O11 (Strong corporate culture	Weak
P8 (Entrepreneurial)	O8 (Innovation)	Strong
P10 (Goal-oriented)	O11 (Strong corporate culture)	Weak
P10 (Goal-oriented)	O3 (Exciting products / services)	Weak
P10 (Goal-oriented)	O1 (Dynamic organisation)	Weak
P12 (Hardworking)	O5 (Good reputation at my institution)	Moderate
P12 (Hardworking)	O2 (Diverse / multicultural employees)	Weak
P13 (Leadership qualities)	O1 (Dynamic organisation)	Moderate
P13 (Leadership qualities)	O11 (Strong corporate culture)	Weak
P13 (Leadership qualities)	O9 (Market success)	Weak
P13 (Leadership qualities)	O3 (Exciting products / services)	Weak
P14 (Responsible)	O5 (Good reputation at my institution)	Moderate
P14 (Responsible)	O2 (Diverse / multicultural employees)	Moderate
P15 (Social)	O2 (Diverse / multicultural employees)	Moderate
P15 (Social)	O5 (Good reputation at my institution)	Moderate
P17 (Verbal)	O2 (Diverse / multicultural employees)	Moderate
P17 (Verbal)	O5 (Good reputation at my institution)	Moderate

The following points do not form any meaningful associations on dimension 2 as they lie between -0.02 and 0.02:

- Personality characteristics

P2 (*ambitious*); P10 (*goal-oriented*); P11 (*handles stress well*); P12 (*hardworking*); P14 (*responsible*); P17 (*verbal*)

- Organisational features

O1 (*dynamic organisation*); O2 (*good / confidence inspiring management*); O5 (*good reputation at my institution*); O9 (*market success*)

Table 21

Personality characteristics and organisational features on dimension 2

Personality characteristic	Organisational feature	Strength of association
P1 (Accurate)	O10 (Recruiting only the best students)	Strong
P1 (Accurate)	O7 (High ethical standards)	Moderate
P3 (Analytical)	O7 (High ethical standards)	Moderate
P3 (Analytical)	O4 (Financial strength)	Weak
P3 (Analytical)	O11 (Strong corporate culture)	Weak
P4 (Creative)	O3 (Exciting products / services)	Moderate
P4 (Creative)	O8 (Innovation)	Moderate
P4 (Creative)	O13 (Corporate social responsibility)	Moderate
P4 (Creative)	O12 (Diverse / multicultural employees)	Moderate
P4 (Creative)	O6 (Equality between the sexes)	Moderate
P5 (Curious)	O3 (Exciting products / services)	Weak
P5 (Curious)	O8 (Innovation)	Moderate
P5 (Curious)	O13 (Corporate social responsibility)	Moderate
P5 (Curious)	O12 (Diverse / multicultural employees)	Moderate
P5 (Curious)	O6 (Equality between the sexes)	Moderate
P6 (Inspiring colleagues)	O7 (High ethical standards)	Moderate
P6 (Inspiring colleagues)	O10 (Recruiting only the best students)	Moderate
P7 (Enthusiastic)	O3 (Exciting products / services)	Moderate
P7 (Enthusiastic)	O13 (Corporate social responsibility)	Strong
P7 (Enthusiastic)	O12 (Diverse / multicultural employees)	Moderate
P7 (Enthusiastic)	O6 (Equality between the sexes)	Moderate
P7 (Enthusiastic)	O8 (Innovation)	Strong
P8 (Entrepreneurial)	O8 (Innovation)	Moderate
P8 (Entrepreneurial)	O3 (Exciting products / services)	Moderate
P8 (Entrepreneurial)	O6 (Equality between the sexes)	Moderate
P9 (Flexible)	O13 (Corporate social responsibility)	Strong
P9 (Flexible)	O12 (Diverse / multicultural employees)	Strong
P9 (Flexible)	O6 (Equality between the sexes)	Moderate
P9 (Flexible)	O8 (Innovation)	Moderate
P13 (Leadership qualities)	O11 (Strong corporate culture)	Weak

P13 (Leadership qualities)	O4 (Financial strength)	Weak
P15 (Social)	O12 (Diverse / multicultural employees)	Strong
P15 (Social)	O13 (Corporate social responsibility)	Strong
P15 (Social)	O6 (Equality between the sexes)	Moderate
P15 (Social)	O8 (Innovation)	Moderate
P16 (Team player)	O6 (Equality between the sexes)	Weak
P16 (Team player)	O3 (Exciting products / services)	Weak

The following points do not form any meaningful associations on both dimensions as they lie between -0.02 and 0.02:

- Personality characteristics

P1 (*accurate*); P2 (*ambitious*); P5 (*curious*); P7 (*enthusiastic*); P9 (*flexible*); P10 (*goal-oriented*); P11 (*handles stress well*); P12 (*hardworking*); P14 (*responsible*); P16 (*team player*); P17 (*verbal*)

- Job features

O1 (*dynamic organisation*); O2 (*good / confidence inspiring management*); O4 (*financial strength*); O5 (*good reputation at my institution*); O9 (*market success*); O12 (*diverse / multicultural employees*); O13 (*corporate social responsibility*); O10 (*recruiting only the best students*)

Table 22

Personality characteristics and organisational features on both dimensions

Personality characteristic	Organisational feature	Strength of association
P13 (Leadership qualities)	O11 (Strong corporate culture)	Weak
P4 (Creative)	O3 (Exciting products / services)	Moderate

Personality characteristics and career goals

Table 23 consists of the list of career goals and is a guideline for identifying the specific career goal element.

Table 23

Career goals elements

C1 Work internationally	C8 Become a specialist
C2 Work with increasingly challenging tasks	C9 Contribute to society
C3 Reach a managerial level	C10 Balance personal life and career
C4 Develop new products	C11 Manage projects
C5 Influence corporate strategies	C12 Rotate jobs within a company
C6 Build a sound financial base	C13 Other (please specify below)
C7 Start a business	

Table 24 presents the principal inertias (eigenvalues) for the correspondence analyses for personality characteristics and career goals. The career goal element C13 (*Other*) has been ignored because of the large number of responses to this survey.

Table 24

Principal inertias (eigenvalues) for personality characteristics and career goals

Principal Inertias (eigenvalues):							
	1	2	3	4	5	6	7
Value	0.00451	0.002998	0.001641	0.00092	0.000699	0.000342	0.000264
Percentage	38.66%	25.70%	14.07%	7.89%	5.99%	2.93%	2.26%
	8	9	10	11	12		
Value	0.000163	6.80E-05	3.70E-05	1.90E-05	6.00E-06		
Percentage	1.40%	0.58%	0.32%	0.16%	0.05%		

In Table 24, the sum of the first three eigenvalues is approximately seventy-eight percent. This means that the map can be used to interpret the data as the quality of analysis is high. Tables 25 and 26 present the inertia, frequency table and chi-squared results of the correspondence analysis for personality characteristics and career goals. Table 25 represents the rows while Table 26 represents the columns.

Table 25

Inertia, frequency table and chi-squared results for personality characteristics and career goals: rows

				Rows:			
	P1	P2	P3	P4	P5	P6	P7
Mass	0.040406	0.108585	0.056949	0.072732	0.038467	0.037083	0.041191
ChiDist	0.09147	0.059706	0.130682	0.125681	0.124348	0.132731	0.059868
Inertia	0.000338	0.000387	0.000973	0.001149	0.000595	0.000653	0.000148
Dim.1	-0.49968	0.62923	-0.2663	0.498508	-0.75495	-0.88147	-0.64313
Dim.2	0.131049	0.377968	1.602349	-1.65259	-1.78687	1.617897	-0.20795
	P8	P9	P10	P11	P12	P13	P14
Mass	0.029089	0.04389	0.0728	0.042609	0.131687	0.073347	0.097499
ChiDist	0.326348	0.068588	0.083844	0.065804	0.05459	0.106428	0.095387
Inertia	0.003098	0.000206	0.000512	0.000185	0.000392	0.000831	0.000887
Dim.	4.567396	0.129711	0.516035	-0.80042	-0.31426	0.76664	-1.0961
Dim.	-1.29418	-0.84126	1.202078	-0.01992	-0.18524	1.177395	-0.6456
	P15	P16	P17				
Mass	0.04424	0.050108	0.019319				
ChiDist	0.135125	0.080774	0.095956				
Inertia	0.000808	0.000327	0.000178				
Dim.1	-0.69322	0.209373	-0.56036				
Dim.2	-1.04505	0.833255	-0.34779				

Table 26

Inertia, frequency table and chi-squared results for personality characteristics and career goals: columns

				Columns:			
	C1	C2	C3	C4	C5	C6	C7
Mass	0.12664	0.100463	0.095996	0.046461	0.056342	0.086465	0.073944
ChiDist	0.057705	0.084754	0.086621	0.156761	0.164282	0.087767	0.197633
Inertia	0.000422	0.000722	0.00072	0.001142	0.001521	0.000666	0.002888
Dim.1	-0.00793	-0.18397	0.468378	-0.12224	1.510077	-0.53793	2.652739
Dim.2	-0.69528	0.492417	1.200816	-1.8029	1.955242	0.481531	-1.32598
	C8	C9	C10	C11	C12	C13	
Mass	0.095108	0.093434	0.122651	0.072134	0.027894	0.002468	
ChiDist	0.088636	0.092709	0.100842	0.062369	0.111287	0.256443	
Inertia	0.000747	0.000803	0.001247	0.000281	0.000345	0.000162	
Dim.1	-0.69723	-0.44157	-1.30493	0.450372	-0.68276	-0.13912	
Dim.2	0.958333	-1.23971	-0.37047	0.342755	-0.139	1.052696	

Table 26 indicates that in terms of the mass for the elements of career goals, most of the participants selected work internationally (C1 = 0.126) and balance personal life and career (C10 = 0.122). In Figure 3 below, the personality characteristics (P) elements are plotted

together with the thirteen career goal elements. In Figure 3 career goals are indicated by the letter C.

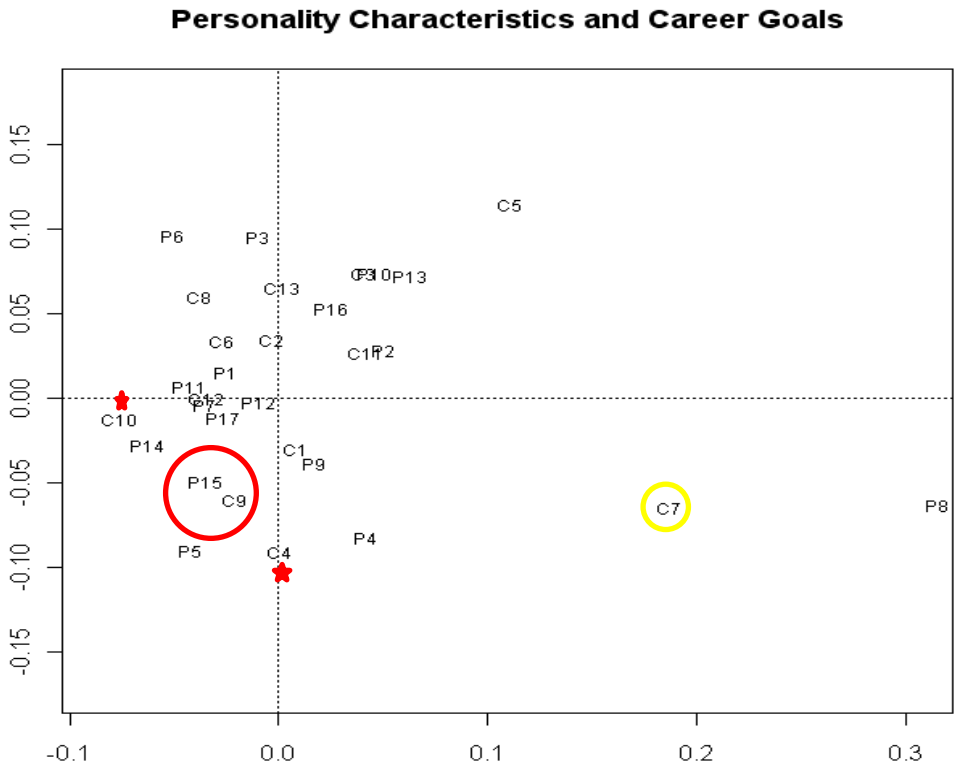

Figure 3. Correspondence map for personality characteristics and career goals

Interpretation of Figure 3

The following points do not form any meaningful associations on dimension 1 as they lie between -0.02 and 0.02:

- Personality characteristics

P1 (*accurate*); P3 (*analytical*); P9 (*flexible*); P12 (*hardworking*); P16 (*team player*); P17 (*verbal*)

- Career goals

C1 (*work internationally*); C2 (*work with increasingly challenging tasks*); C4 (*develop new products*); C6 (*build a sound financial base*); C9 (*contribute to society*)

In applying the interpretation rules of correspondence maps, Table 27 presents the results for the observations made for Figure 3:

Table 27

Personality characteristics and career goals on dimension 1

Personality characteristic	Career goals	Strength of association
P2 (Ambitious)	C11 (Manage projects)	Weak
P2 (Ambitious)	C3 (Reach a managerial level)	Moderate
P4 (Creative)	C3 (Reach a managerial level)	Moderate
P5 (Curious)	C12 (Rotate jobs within a company)	Weak
P5 (Curious)	C8 (Become a specialist)	Weak
P5 (Curious)	C10 (Balance personal life and career)	Moderate
P6 (Efficient)	C8 (Become a specialist)	Moderate
P6 (Efficient)	C12 (Rotate jobs within a company)	Weak
P6 (Efficient)	C10 (Balance personal life and career)	Weak
P7 (Enthusiastic)	C12 (Rotate jobs within a company)	Weak
P7 (Enthusiastic)	C8 (Become a specialist)	Weak
P8 (Entrepreneurial)	C7 (Start a business)	Moderate
P10 (Goal-oriented)	C11 (Manage projects)	Moderate
P10 (Goal-oriented)	C3 (Reach a managerial level)	Moderate
P11 (Handles stress well)	C12 (Rotate jobs within a company)	Moderate
P11 (Handles stress well)	C8 (Become a specialist)	Moderate
P13 (Leadership qualities)	C3 (Reach a managerial level)	Moderate
P14 (Responsible)	C10 (Balance personal life and career)	Strong
P14 (Responsible)	C8 (Become a specialist)	Moderate
P15 (Social)	C12 (Rotate jobs within a company)	Weak
P15 (Social)	C8 (Become a specialist)	Weak

The following points do not form any meaningful associations on dimension 2 as they lie between -0.02 and 0.02:

- Personality characteristics

P1 (*accurate*); P7 (*enthusiastic*); P11 (*handles stress well*); P12 (*hardworking*); P17 (*verbal*)

- Career goals

C10 (*balance personal life and career*); C12 (*rotate jobs within a company*)

Table 28

Personality characteristics and career goals on dimension 2

Personality characteristic	Career goal	Strength of association
P2 (Ambitious)	C11 (Manage projects)	Weak
P2 (Ambitious)	C2 (Work with increasingly challenging tasks)	Weak
P2 (Ambitious)	C6 (Build a sound financial base)	Weak
P3 (Analytical)	C5 (Influence corporate strategies)	Strong
P3 (Analytical)	C3 (Reach a managerial level)	Strong
P3 (Analytical)	C8 (Become a specialist)	Strong
P4 (Creative)	C4 (Develop new products)	Strong
P4 (Creative)	C9 (Contribute to society)	Moderate
P5 (Curious)	C4 (Develop new products)	Strong
P5 (Curious)	C7 (Start a business)	Moderate
P5 (Curious)	C9 (Contribute to society)	Moderate
P6 (Efficient)	C5 (Influence corporate strategies)	Strong
P6 (Efficient)	C3 (Reach a managerial level)	Moderate
P6 (Efficient)	C8 (Become a specialist)	Moderate
P8 (Entrepreneurial)	C7 (Start a business)	Strong
P8 (Entrepreneurial)	C4 (Develop new products)	Strong
P9 (Flexible)	C1 (Work internationally)	Weak
P9 (Flexible)	C9 (Contribute to society)	Moderate
P9 (Flexible)	C7 (Start a business)	Moderate
P10 (Goal-oriented)	C3 (Reach a managerial level)	Strong
P10 (Goal-oriented)	C8 (Become a specialist)	Strong
P10 (Goal-oriented)	C2 (Work with increasingly challenging tasks)	Moderate
P10 (Goal-oriented)	C6 (Build a sound financial base)	Moderate
P13 (Leadership qualities)	C3 (Reach a managerial level)	Strong
P13 (Leadership qualities)	C8 (Become a specialist)	Strong
P13 (Leadership qualities)	C6 (Build a sound financial base)	Moderate
P13 (Leadership qualities)	C2 (Work with increasingly challenging tasks)	Moderate
P14 (Responsible)	C1 (Work internationally)	Weak
P14 (Responsible)	C9 (Contribute to society)	Weak
P14 (Responsible)	C7 (Start a business)	Weak
P15 (Social)	C9 (Contribute to society)	Strong
P15 (Social)	C1 (Work internationally)	Weak

P15 (Social)	C7 (Start a business)	Weak
P15 (Social)	C4 (Develop new products)	Weak
P16 (Team player)	C11 (Manage projects)	Weak
P16 (Team player)	C2 (Work with increasingly challenging tasks)	Weak
P16 (Team player)	C6 (Build a sound financial base)	Weak
P16 (Team player)	C8 (Become a specialist)	Strong

The following points do not form any meaningful associations on both dimensions as they lie between -0.02 and 0.02:

- Personality characteristics

P1 (*accurate*); P3 (*analytical*); P7 (*enthusiastic*); P9 (*flexible*); P11 (*handles stress well*); P12 (*hardworking*); P16 (*team player*); P17 (*verbal*)

- Career goals

C1 (*work internationally*); C2 (*work with increasingly challenging tasks*); C4 (*develop new products*); C6 (*build a sound financial base*); C9 (*contribute to society*); C10 (*balance personal life and career*); C12 (*rotate jobs within a company*)

Table 29

Personality characteristics and career goals both dimensions

Personality characteristic	Career goal	Strength of association
P13 (Leadership qualities)	C3 (Reach a managerial level)	Moderate
P10 (Goal oriented)	C3 (Reach a managerial level)	Moderate
P2 (Ambitious)	C11 (Manage projects)	Weak

Principal Component Analysis (PCA)

In this study a Principal Component Analysis (PCA) was performed on the seventeen personality variables. It was found that several clusters appeared to form. This is not unrealistic, since one gets specific types of personalities which will agree to more or less the same selection of personality variables. The data set was found to be too large to cluster the subjects according to the personality variables. The data set was thus divided according to DEGREE_YEAR (the year that participants expected to graduate). This variable did not

appear to be related to personality, whereas variables such as gender might have some vague relationship.

The R function Mclust from the package mclust was used to perform a model-based clustering, using the first twelve principal components as the variables for clustering. This method searches for the optimal number of clusters according to the BIC (bayesian information criterion). For the different degree years differing numbers of clusters were found which are presented in Table 30.

Table 30

Principal component analysis and cluster analysis

Expected graduation year	Clusters
1	22
2	48
3	36
4	39
5	50
6	48

Using the fifth year, with fifty clusters as a reference, the distance between each mean in the other years and each of the means in year five was calculated. The clusters in the other years were then merged with their closest corresponding clusters in year five. The cluster means of the merged clusters, i.e. fifty means was recalculated. Each individual was then classified to its nearest mean.

The PCA biplot is presented in Figure 4. Each colour-shape combination represents one of the fifty clusters. Each symbol represents a subject and each axis a personality characteristic. The axes are labelled on their positive side, i.e. subjects close to that side selected 'yes' for that variable and the ones on the opposite side selected 'no'.

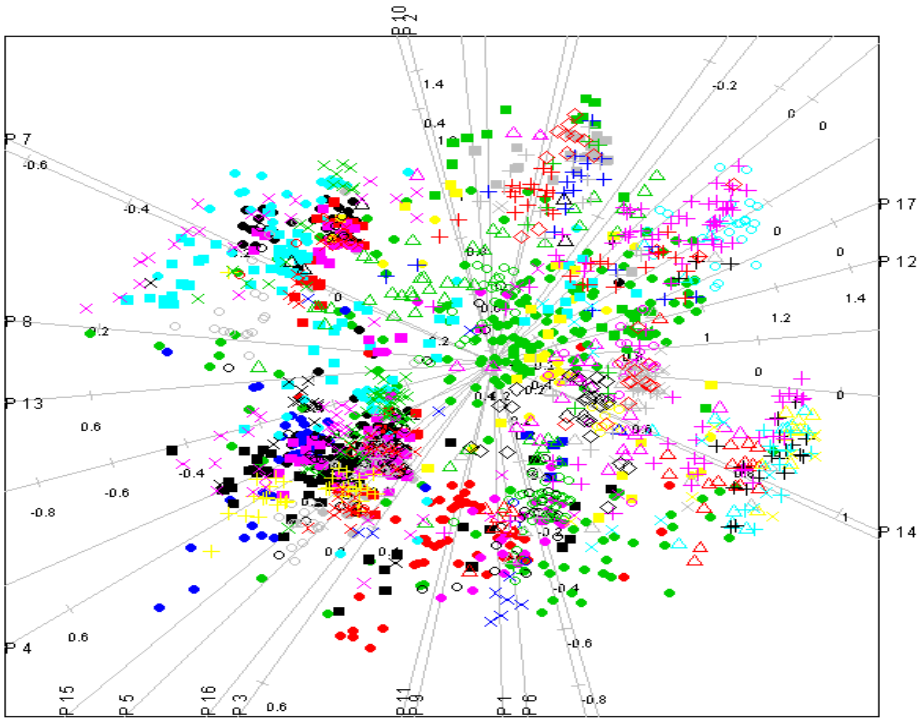

Figure 4. PCA biplot

The fifty clusters that the subjects have been assigned to which was based on the first 12 components of the PCA of their personality characteristics were then sequentially split, according to their responses to various job features, organisational features and career goals. These clusters were then subsequently used in the Classification and Regression Tree (CART) analysis. This next analysis is discussed below, in the section entitled Classification Trees.

Classification Trees (CT)

In this analysis, the fifty clusters that the subjects have been assigned to (based on the first twelve components of the PCA of their personality characteristics) have been sequentially split, according to their responses to various job features, organisational attributes and career goals. The splits or branches are determined using the Gini coefficient, which ideally splits the groups into smaller 'more pure' groups, (i.e. there is less variation within groups and more between groups). This then builds a "tree" with various branches, which is

constructed with the tree function from the R package tree. Looking at the deviance for various tree sizes enables one to select the optimal number of branches for the tree.

Determining the proportion of particular personality characteristics within the clusters in a particular leaf.

To relate the leaves of the tree with the personality characteristics a weighted mean was calculated as follows: The tree output gives a vector (50 x 1) of proportion of subjects in this node by cluster. The i-th personality characteristic for subject j is weighted, by proportion k if subject j belongs to cluster k. The mean over all n subjects (j) for each characteristic (i) was then calculated.

At each leaf, the proportions are calculated and depicted in a bar chart. In terms of interpretation, the personality characteristics bar charts for all leaves follow more or less the same pattern. That is because some characteristics are selected very often and some very seldom. One has to look for differences in the lengths of the bars. To ease this comparison, each column was standardised by the overall mean for that column over all subjects. The longer the bar, the larger the proportion of subjects in this leaf that selected this job feature, organisational attribute and career goal than overall in the whole sample. This analysis was repeated for each group of variables separately (J, O, C).

The final leaves of this classification tree are analysed. This means that each final point after a split / branch is looked at, and in that leaf there may be a number of the original clusters. The proportion of responses to particular personality characteristics within the clusters in that leaf is then determined. One is thus able to relate the personality characteristics to the responses for job features, organisational attributes and career goals.

Three separate classification tree analyses were conducted between personality characteristics and each of the three dependent variables: job features, organisational features, and career goals. The selection of branches for each analysis is indicated by Figures 5, 7 and 9 respectively. Each of these figures is accompanied by tables with the x-axis representing the tree size and the y-axis representing the deviance.

Personality characteristics and job features.

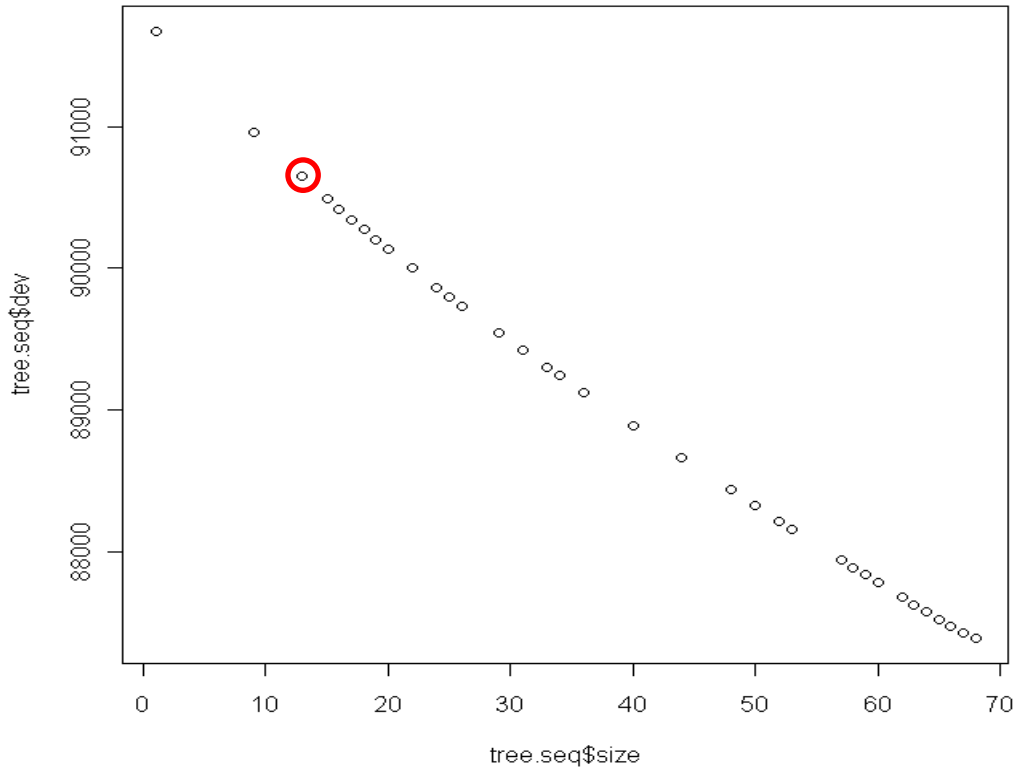

Figure 5. Classification tree: Selection of branches for personality characteristics and job features

Table 31 presents the selection of branches for personality characteristics and job features. It indicates the size and deviance of the branches and the final selection of the branches.

Table 31

Classification tree: selection of branches for personality characteristics and job features

Size	Deviance	Size	Deviance	Size	Deviance	Size	Deviance
80	86666.84	64	87451.46	34	89182.35	20	90119.59
79	86709.17	59	87716.13	33	89243.94	19	90192.84
78	86751.73	56	87881.26	32	89305.89	18	90266.43
77	86795.89	54	87997.82	30	89430.87	17	90340.44
75	86887.67	53	88056.33	28	89563.04	9	90945.29
74	86934.43	51	88173.39	24	89830.22	2	91573.5
73	86983.46	42	88700.37	23	89901.63	1	91671.83
67	87294.24	36	89060.14	22	89973.41		

Seventeen branches were selected for this analysis. The number of branches was selected based on the deviance: starting right and moving left on the graph, there appeared to be a big jump in the deviance (from 90340.44 to 90945.29). The general rule of thumb is to select the cluster where the jump begins. This, however, is a very subjective procedure. Figure 6 presents the weighted classification tree for personality characteristics and job features.

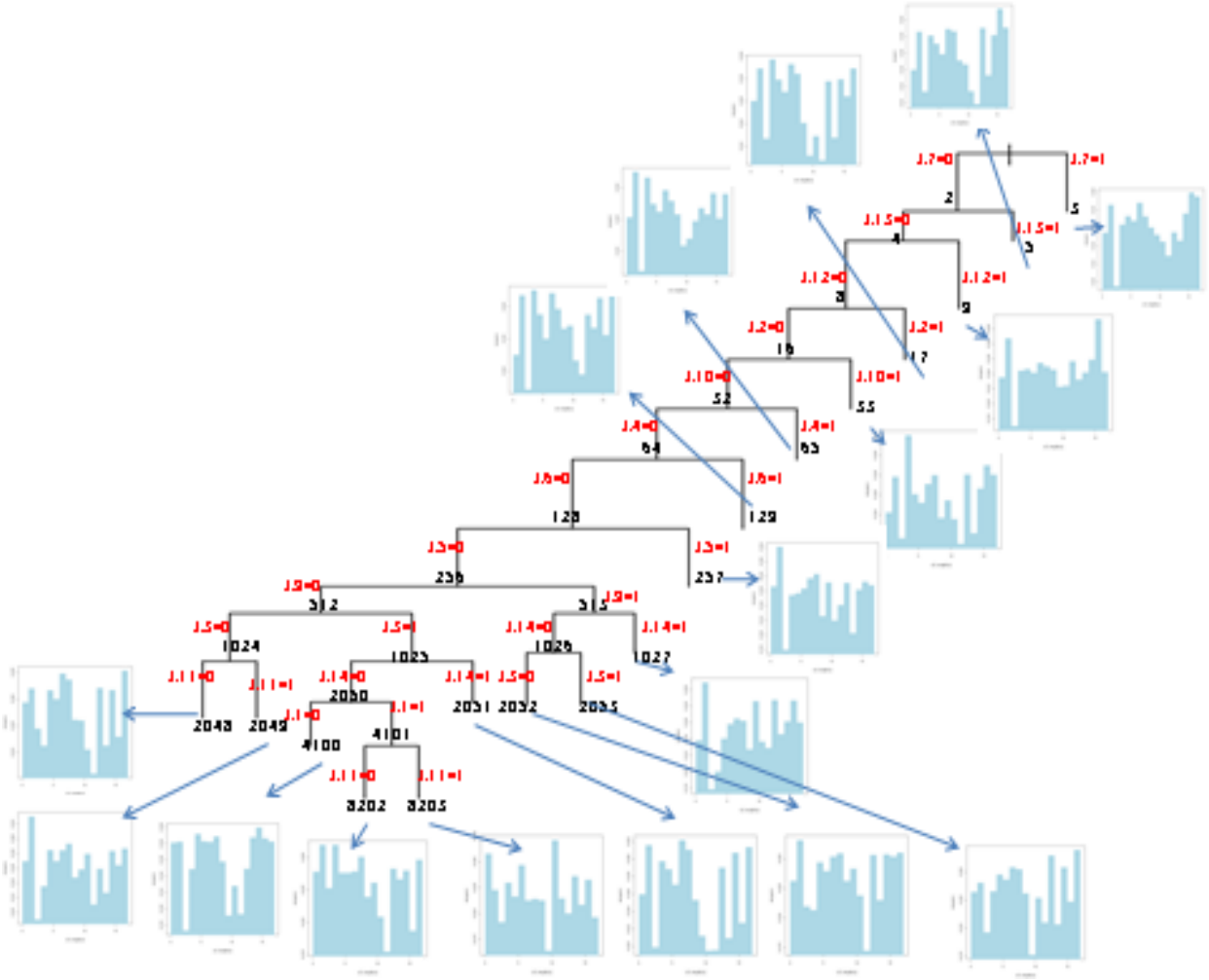

Figure 6. Weighted classification tree for personality characteristics and job features

Table 31 presents the results of the weighted classification tree for personality characteristics and job features. It indicates the specific personality characteristics that were selected the most for a particular leaf which represents a particular job feature element. It also presents those personality characteristics that were not selected with the job feature for information purposes.

Table 32

Interpretation of weighted classification tree for personality characteristics and job features

Leaf	Job feature	Personality characteristics mostly selected	Personality characteristics not selected
Leaf 3	J7 (internal education)	P16 (team player); P17 (verbal); P7 (enthusiastic); P2 (ambitious)	P3 (analytical)
Leaf 5	J13 (mentorship)	P16 (team player); P17 (verbal); P13 (leadership qualities); P7 (enthusiastic); P2 (ambitious); P6 (efficient)	P12 (hard working)
Leaf 9	J12 (trainee programme)	P16 (team player); P2 (ambitious)	P3 (analytical)
Leaf 17	J2 (variety of assignments)	P4 (creative); P7 (enthusiastic); P2 (ambitious); P17 (verbal); P8 (entrepreneurial)	P12 (hard working)
Leaf 33	J10 (project-based work)	P4 (creative)	P2 (ambitious)
Leaf 65	J4 (good career reference)	P2 (ambitious); P4 (creative); P7 (enthusiastic); P15 (social); P17 (verbal)	P3 (analytical)
Leaf 129	J6 (inspiring colleagues)	P4 (creative); P7 (enthusiastic); P17 (verbal); P2 (ambitious); P15 (social)	P3 (analytical)
Leaf 257	J5 (increasingly challenging tasks)	P2 (ambitious)	P3 (analytical)
Leaf 1027	J14 (rapid career advancement)	P2 (ambitious); P10 (goal-oriented); P13 (leadership qualities); P16 (team player)	P3 (analytical)
Leaf 2053	J3 (flexible working hours)	P17 (verbal); P13 (leadership qualities); P15 (social); P8 (entrepreneurial)	P10 (goal-oriented)
Leaf 2051	J14 (rapid career advancement)	P7 (enthusiastic); P2 (ambitious); P17 (verbal); P8 (entrepreneurial); P15 (social)	P11 (handles stress well); P12 (hard working); P3 (analytical)
Leaf 8203	J11 (secure employment)	P11 (handles stress well); P1 (accurate)	P10 (goal-oriented)
Leaf 2049	J11 (secure employment)	P2 (ambitious)	P3 (analytical)

Personality characteristics and organisational features.

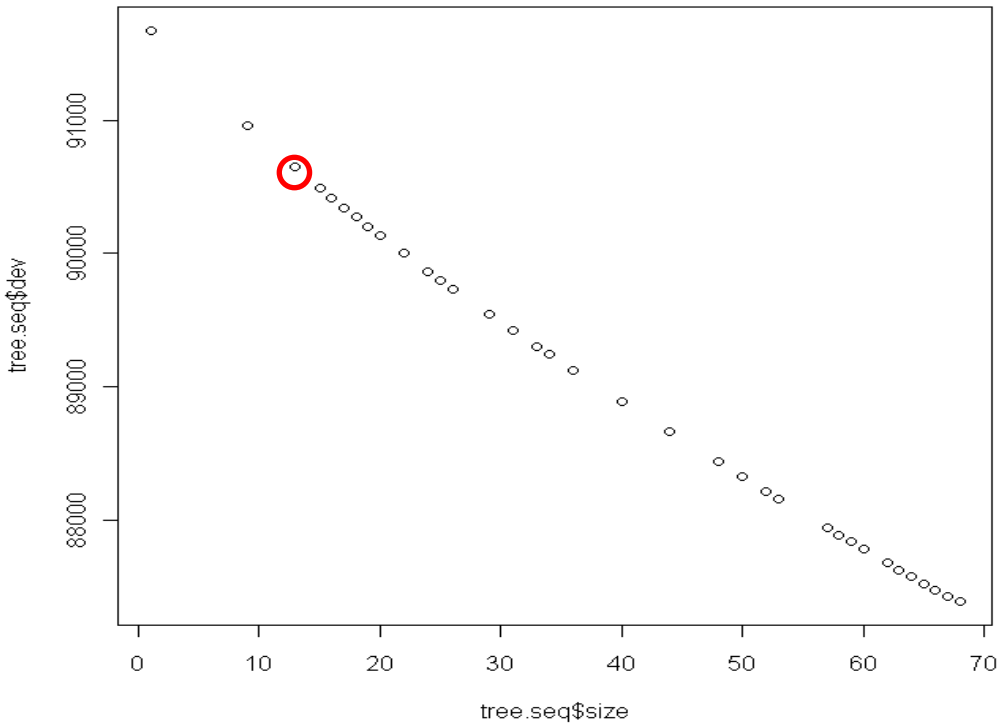

Figure 7. Classification tree: Selection of branches for personality characteristics and organisational features

Table 33 presents the selection of branches for personality characteristics and organisational features, indicating the size and deviance of the branches and the final selection of the branches.

Table 33

Classification tree: selection of branches for personality characteristics and organisational features

Size	Deviance	Size	Deviance	Size	Deviance	Size	Deviance
68	87386.66	58	87888.69	34	89244.78	19	90203.91
67	87430.28	57	87942.58	33	89304.16	18	90272.84
66	87475.53	53	88159.39	31	89423.11	17	90346.12
65	87524.22	52	88213.79	29	89547.47	16	90420.27
64	87574.03	50	88322.98	26	89735.22	15	90496.08
63	87624.84	48	88436.23	25	89801.45	13	90647.82
62	87676.08	44	88662.76	24	89867.82	9	90963.61
60	87781.85	40	88891.21	22	90001.77	1	91677.62
59	87835.13	36	89126.43	20	90136.17		

Thirteen branches were selected for this analysis. There appeared to be a big jump in the deviance (from 90963.61 to 90647.82). Figure 8 presents the weighted classification tree for personality characteristics and job features.

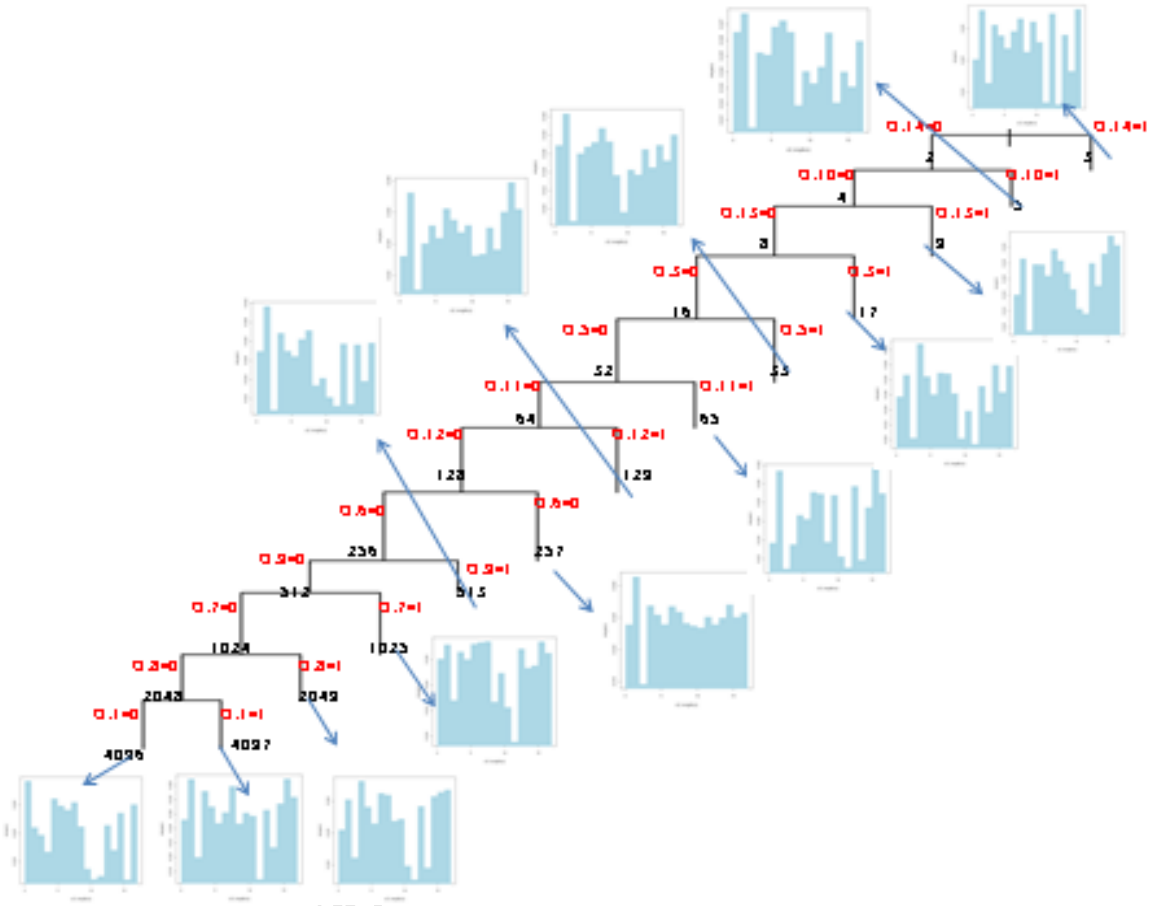

Figure 8. Weighted classification tree for personality characteristics and organisational features

Table 34 presents the results of the weighted classification tree for personality characteristics and organisational features. It indicates the specific the personality characteristics that were selected the most for a particular leaf which represents a particular organisational feature element. It also presents those personality characteristics that were not selected with the organisational feature for information purposes.

Table 34

Interpretation of weighted classification tree for personality characteristics and organisational features

Leaf	Organisational feature	Personality characteristics mostly selected	Personality characteristics not selected
Leaf 3	O14 (other)	P17 (verbal); P2 (ambitious); P13 (leadership qualities); P8 (entrepreneurial); P10 (goal-oriented);	P14 (responsible); P12 (hard working)
Leaf 5	O10 (recruiting only the best students)	P2 (ambitious); P7 (enthusiastic); P13 (leadership qualities); P8 (entrepreneurial); P1 (accurate)	P3 (analytical)
Leaf 9	O13 (corporate social responsibility)	P16 (team player); P17 (verbal); P7 (enthusiastic)	P3 (analytical)
Leaf 17	O3 (exciting products / services)	P4 (creative); P15 (social); P17 (verbal)	P12 (hard working)
Leaf 33	O5 (good reputation at my university)	P2 (ambitious); P7 (enthusiastic); P17 (verbal); P8 (entrepreneurial); P1 (accurate)	P3 (analytical)
Leaf 65	O11 (strong corporate culture)	P16 (team player); P2 (ambitious); P13 (leadership qualities)	P3 (analytical); P12 (hard working)
Leaf 129	O12 (diverse / multicultural employees)	P16 (team player); P2 (ambitious); P17 (verbal); P7 (enthusiastic)	P3 (analytical)
Leaf 513	O9 (market success)	P2 (ambitious); P8 (entrepreneurial); P4 (creative)	P3 (analytical)
Leaf 1025	O7 (high ethical standards)	P8 (entrepreneurial); P7 (enthusiastic); P16 (team player); P6 (efficient); P2 (ambitious); P13 (leadership qualities); P17 (verbal); P1 (accurate); P4 (creative)	P13 (leadership qualities)
Leaf 2049	O8 (innovation)	P4 (creative); P17 (verbal); P16 (team player); P15 (social); P7 (enthusiastic); P8 (entrepreneurial); P2 (ambitious)	P12 (hard working)
Leaf 4097	O1 (dynamic organisation)	P16 (team player); P2 (ambitious); P8 (entrepreneurial); P4 (creative)	P12 (hard working)

Personality characteristics and career goals.

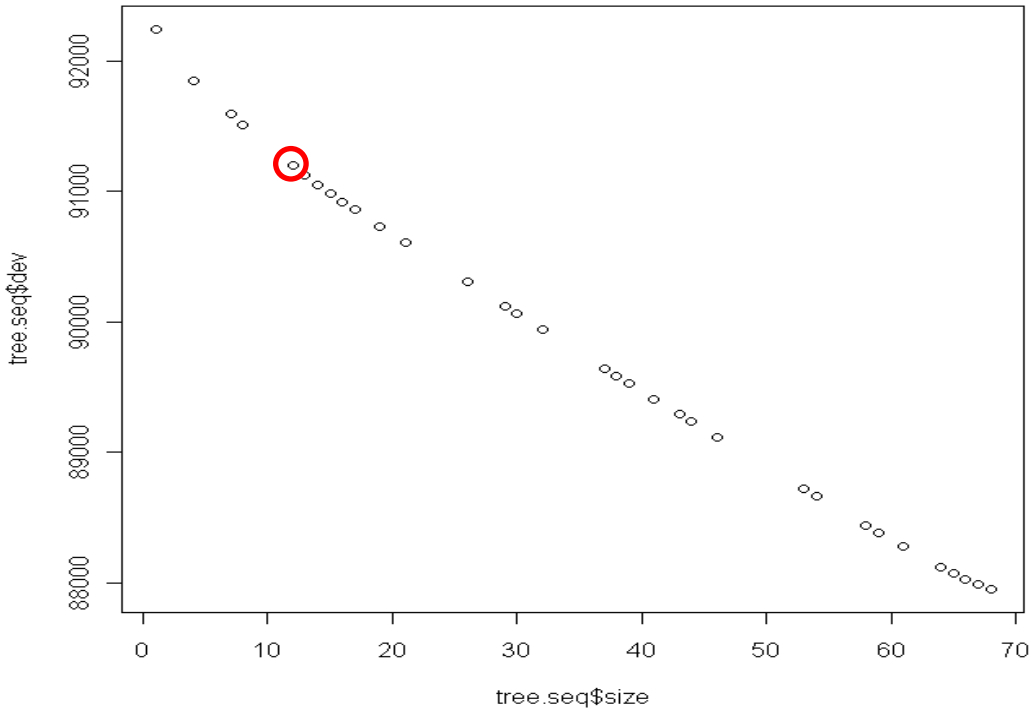

Figure 9: Classification tree: selection of branches for personality characteristics and career goals

Table 35 presents the selection of branches for personality characteristics and career goals, indicating the size and deviance of the branches and the final selection of the branches.

Table 35

Classification tree: selection of branches for personality characteristics and career goals

Size	Deviance	Size	Deviance	Size	Deviance	Size	Deviance
68	87950.99	53	88721.35	30	90060.57	13	91123.73
67	87990.99	46	89120.75	29	90121.13	12	91195.39
66	88031.63	44	89236.11	26	90304.44	8	91509.39
65	88075.56	43	89294.14	21	90610.23	7	91588.9
64	88123.49	41	89410.27	19	90733.53	4	91846.84
61	88280.14	39	89526.43	17	90857.26	1	92245.26
59	88387.04	38	89585.4	16	90921.26		
58	88441.28	37	89644.38	15	90986.7		
54	88664.77	32	89941.08	14	91052.87		

Twelve branches were selected for this analysis. There appeared to be a big jump in the deviance (from 91509.39 to 91195.39). Figure 10 presents the weighted classification tree for personality characteristics and career goals.

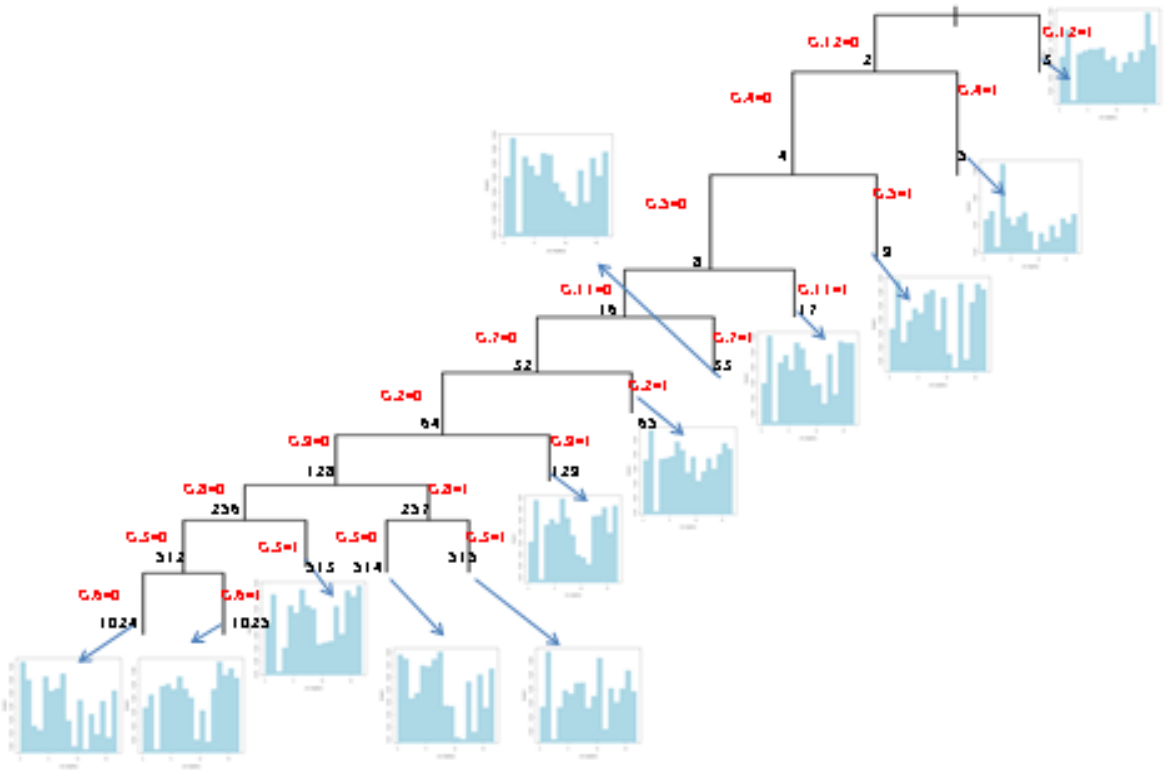

Figure 10: Weighted classification tree for personality characteristics and career goals

Table 36 presents the results of the weighted classification tree for personality characteristics and career goals. It indicates the specific the personality characteristics that were selected the most for a particular leaf which represents a particular career goal element. It also presents those personality characteristics that were not selected with the career goal for information purposes.

Table 36

Interpretation of weighted classification tree for personality characteristics and career goals

Leaf	Career goal	Personality characteristics mostly selected	Personality characteristics not selected
Leaf 3	G12 (rotate jobs within a company)	P16 (team player); P2 (ambitious)	P3 (analytical)
Leaf 5	G4 (develop new products)	P4 (creative)	P10 (goal-oriented)
Leaf 9	G5 (influence corporate strategies)	P2 (ambitious); P13 (leadership qualities); P16 (team player); P17 (verbal); P8 (entrepreneurial)	P12 (hard working)
Leaf 17	G11 (manage projects)	P2 (ambitious); P15 (social); P16 (team player); P17 (verbal); P7 (enthusiastic); P8 (entrepreneurial)	P3 (analytical)
Leaf 33	G7 (start a business)	P2 (ambitious); P7 (enthusiastic); P8 (entrepreneurship); P17 (verbal); P15 (social); P9 (flexible); P4 (creative)	P3 (analytical)
Leaf 65	G2 (work with increasingly challenging tasks)	P2 (ambitious); P7 (enthusiastic); P16 (team player); P8 (entrepreneurial); P17 (verbal)	P3 (analytical)
Leaf 129	G9 (contribute to society)	P7; P2 (ambitious); P17 (verbal); P15 (social)	P3 (analytical)
Leaf 515	G3 (reach a managerial level)	P2 (ambitious); P11 (handles stress well); P16 (team player)	P3 (analytical)
Leaf 513	G3 (reach a managerial level)	P17 (verbal); P15 (social); P7 (enthusiastic); P2 (ambitious)	P3 (analytical)
Leaf 1025	G6 (build a sound financial base)	P14 (responsible); P16 (team player); P7 (enthusiastic); P15 (social); P17 (verbal)	P3 (analytical)

Chapter 5: Discussion

The purpose of this study was to gain a better understanding of factors that influence South African graduates' choices. Specifically this study explored whether or not there were relationships between self-selected personality characteristics and preferences for job features, organisational features and career goals. These four variables were the focus of this study because findings in related literature suggested that an individual's personality type plays a role in their preferences for particular jobs, organisations and career goals. In order to investigate these relationships, an exploratory research approach was adopted with the intention of answering the following research questions:

1. Do self-selected personality characteristics explain graduates' job preferences?
2. Do self-selected personality characteristics explain graduates' organisational preferences?
3. Do self-selected personality characteristics explain graduates' career goals?

In order to answer these questions and achieve the present study's research objectives an exploratory research approach was adopted. The two primary statistical procedures used to analyse the data was Correspondence Analysis (CA) and Classification Trees (CT), with Principal Component Analysis (PCA) providing the background information required in order to construct the classification trees. These data analysis techniques are exploratory techniques designed to identify associations and relationships between the dependent variable, i.e. job features, organisational features and career goals, and the independent variable, i.e. personality characteristics. The aim of the CA technique was to identify the strength of the associations between personality characteristics and the three dependent variables. The aim of the CT was to relate the leaves of the tree which represented the dependent variables with the proportion of responses to particular personality characteristics.

Patterns or trends were identified where a personality characteristic was found to be associated with an element of the three dependent variables in both the CA and CT. For example, if the personality characteristic *accurate* was found to be associated with the

internal education job feature in both the CA and CT, this was identified as a pattern and will be discussed. It is beyond the scope of this study to discuss all possible associations or relationships between the elements of the variables separately on both techniques, i.e. CA and CT. This is because the amounts of elements of the variables available are too many to explore in this section. Associations on both techniques indicate a stronger chance of a relationship between the two than if there were an association on only one technique.

Patterns Identified between Elements of Personality Characteristics and Job Features

The CA and CT both show that graduates, who identify themselves as accurate, prefer secure employment. The CT shows the highest proportion of responses for accurate in the secure employment leaf while the CA shows a moderate association with secure employment on only one dimension.

In terms of ambitious, the CA shows that this characteristic is moderately associated with rapid career advancement on dimension 1 but not associated with anything on dimension 2. The CT also reveals that ambitious graduates are attracted to rapid career advancement. A preference for increasingly challenging tasks has also been found to be associated with ambitious graduates on both techniques though this association is a weak on dimension 1 of the CA.

For graduates selecting creative, the CT and CA on both dimensions reveal that variety of assignments is a preferred job feature. The association on the CA is weak. The CA on dimension 1 and CT also reveal that inspiring colleagues is an attractive job feature.

Graduates seeing themselves as being enthusiastic prefer internal education, inspiring colleagues and variety of assignments according to both the CT and CA.

Graduates identifying with leadership qualities as a personality characteristic prefer rapid career advancement according to both statistical techniques.

Social graduates prefer flexible working hours. On the CA, there is a strong association between these two elements on both dimensions. Social is also associated with good career reference and inspiring colleagues on both techniques.

Verbal is associated with variety of assignments on both techniques but the association on both CA dimensions is weak. Verbal is associated with flexible working hours on the CA and CT. On the CA, verbal is moderately associated on dimension 1 and weakly associated on dimension 2.

On the CA entrepreneurial is weakly associated with flexible working hours on dimension 2 but is also found on the CT.

Efficient is weakly associated with mentorship on dimension 2 but according to the CT, graduates who selected efficient mostly selected mentorship as their preferred job feature.

Graduates who selected team player as their personality characteristic also selected trainee programme as their preferred job feature on both the CA and CT. On the CA though there is a weak association between the two elements on dimension 2.

Interpretation of the patterns identified.

The results of this study indicate that there is some relationship between graduates' self-selected personality characteristics and the job features that they are attracted to. Not all the personality characteristics and job features in the survey are included as part of the interpretation. Only those elements found to be associated with the job feature elements on both the CA and CT were included. It is also important to bear in mind that some personality characteristics and job features have been selected more than others which is why some of the elements have been excluded from the interpretation.

The patterns of the results indicate that social graduates prefer flexible working hours, a job that will provide them with a good career reference and inspiring colleagues. Enthusiastic, creative and verbal graduates are attracted to jobs with variety of assignments and inspiring colleagues. In addition to these, enthusiastic graduates as well as those identifying

themselves as team players prefer jobs where they are able to be up-skilled as indicated by their preference for jobs with internal education and trainee programmes respectively. Verbal graduates also prefer jobs where they are offered flexible working hours as do those who consider themselves to be entrepreneurial. Graduates identifying themselves as creative prefer jobs with inspiring colleagues. Graduates who see themselves as ambitious are attracted to jobs where they perceive that they could advance rapidly in their careers and work on increasingly challenging tasks. Rapid career advancement is also preferred by graduates identifying themselves as possessing leadership qualities whereas graduates identifying themselves as accurate prefer secure employment. Those who selected efficient would prefer jobs where the opportunity to receive mentorship is available.

As associations have been identified on both techniques, it can be inferred that there is a relationship between the personality characteristics that graduates identify with and the jobs features they may gravitate towards. This is supported by research conducted by Pervin, Cervone and John (2005) who found that personality characteristics play a role in determining the jobs or occupations that graduates gravitate towards. Mucha (2004) also found that graduates prefer working in roles that best suit their personality.

The implications of these results reveal that if organisations are interested in attracting graduates who are efficient, entrepreneurial, accurate, enthusiastic, social, verbal, ambitious, creative, and have leadership qualities and are team players need to ensure that their job offerings include those features mentioned above. They need to tailor their EVPs to ensure that it reflects that they offer these job features to improve their chance that they will attract these kinds of graduates.

CTs revealed that high proportion of responses for these personality characteristics on the various leafs which represented the job and organisational features mentioned above.

As discussed above, these results only include the job features preferred by graduates with certain personality characteristics. The point of these results is that if organisations wish to attract graduates with particular personality characteristics, they need to ensure that the jobs they offer reflects those features that graduates would be attracted to.

Patterns Identified between Elements of Personality Characteristics and Organisational Features

The CA and CT both indicate that graduates, who identify themselves as creative, prefer organisations that offer exciting products and services. The CA reveals a moderate association between these two elements on both dimensions and has the highest proportion of selection in the CT. This indicates a relatively strong relationship between creative graduates and the attraction to exciting products and services. There is also an association between personality characteristics social and creative and organisational feature innovation on both the CA and the CT. On the CA, the association occurs only on dimension two and is indicated as moderate for both personality elements. On the CT, on the innovation leaf, the highest proportion of responses was for creative. Both the CA and the CT also reveals an association between market success and creative graduates with the association on the CA being only on dimension one and the strength of the association being weak. The CA reveals a strong association between graduates who selected entrepreneurial and innovation as one of their preferred organisational features on dimension one and a moderate association on dimension two. The CT also reveals a high proportion of responses from entrepreneurial graduates for innovation.

The CA and CT indicate an association between leadership qualities and strong corporate cultures. The association on both dimensions on the CA, however, is weak.

Verbal is associated with both diverse / multicultural employees and good reputation at my institution. Diverse / multicultural employees are also associated with enthusiastic with the strength of the association being moderate on dimension two. There is an association between accurate and recruiting only the best students on both the CA and CT. One the second dimension of the CA the association is indicated as strong.

There is also a relationship between accurate and high ethical standards on both techniques with the strength of the association being moderate on dimension two of the CA. On the CA and CT there is an association between efficient and high ethical standards with the strength of the association between the two elements indicated as moderate on dimension two only.

Enthusiastic is associated with corporate social responsibility and innovation on both techniques, with the association being strong on dimension two of the CA for both elements.

Interpretation of the patterns identified.

The results of this study indicate that there is some relationship between graduates' self-selected personality characteristics and the organisational features that they are attracted to. Not all the personality characteristics and organisational features in the survey are included as part of the interpretation. Only those elements found to be associated with the organisational feature elements on both the CA and CT were included.

According to Foxcroft and Roodt (2001), individuals seek environments that correspond with their personality traits. The patterns in the results indicate that creative graduates prefer working for innovative organisations that offer exciting products and services and who enjoy market success. Entrepreneurial and enthusiastic graduates are also attracted to innovative organisations with enthusiastic graduates also preferring organisations who prioritise corporate social responsibility. Accurate individuals are attracted to organisations that recruit only the best students. They are also attracted to organisations with high ethical standards as do efficient individuals. Graduates identifying themselves as verbal prefer organisations that have a good reputation at their tertiary institutions and who have a diverse and multicultural employee profile. Graduates identifying themselves as having leadership qualities prefer organisations with strong corporate cultures.

In order to attract these types of personalities, organisations need to find ways to position themselves as employers who possess these features mentioned above. The study conducted by Terjesen, Vinnicombe and Freeman (2007) found that organisational features is important role in attracting applicants. In this study, it seems that innovation is one of the most important features that most of these personality types mentioned above are attracted to. Organisations need to therefore ensure that they are perceived in the market as being innovative if they wish to attract their desired calibre of graduates. If the attributes desired by graduates are offered by employers, ideal work adjustment will occur (Foxcroft &

Roodt, 2001) which will ensure a good return on investment for both the graduate and the organisation.

This study proposed that graduates with similar self-selected personality characteristics will display similar job and organisational preferences. The results provide support for these proposition as association was found between the personality characteristics mentioned above and job and organisational features as indicated by the correspondence maps. The CTs revealed that high proportion of responses for these personality characteristics on the various leafs which represented the job and organisational features mentioned above.

These findings support Schneider's (1987) suggestion that individuals are differentially attracted to different kinds of organisational attributes on the basis of their personality characteristics. Schneider (1987) also suggested that during the organisation's recruitment process applicants are selected to match and sustain that culture on the basis of possessing similar characteristics.

Patterns Identified between Elements of Personality Characteristics and Career Goals

The CA and CT both indicate an association between personality elements ambitious and team player and career goal elements managing projects. According to the CA the strength of the association between ambitious and managing projects is weak on both dimensions. The association between team player and managing projects is found dimension two only and indicates a weak association. The CT reveals that ambitious had the highest proportion of responses on this leaf. Ambitious is also associated with reach managerial level on both techniques, with the strength of the association on dimension one of the CA being moderate and ambitious receiving the highest proportion of responses on this leaf on the CT. Both ambitious and team player are also associated with work with increasingly challenging tasks on both techniques. On dimension two of the CA, the strength of the association is weak for both personality elements, however, ambitious received the highest proportion of responses on this leaf on the CT.

Creative is associated with develop new products on both techniques with the association being strong on dimensions two of the CA.

There is an association between personality elements entrepreneurial and flexible and career goal element start a business on both the CA and CT. The association between this career goal and entrepreneurial on dimension two of the CA is strong while the association with flexible is moderate.

Social is associated with contribute to society and start a business on the CA and CT. The strength of the association between social and contribute to society is strong on dimension two of the CA and the association starting a business being weak on dimension two of the CA.

Interpretation of the patterns identified.

The results of this study indicate that there is some relationship between graduates' self-selected personality characteristics and the career goals that they are attracted to pursuing. As with the previous interpretations, only those elements found to be associated with the career goal elements on both the CA and CT were included.

The results of this study revealed that ambitious individuals and those who see themselves as team players set career goals such as managing projects and working on increasingly challenging tasks. In addition, ambitious individuals would like to reach a managerial level in their organisation.

Graduates who are social would prefer organisations that enable them to contribute to society. Social graduates also see themselves as starting their own business. The goal of starting a business is also pursued by graduates who selected entrepreneurial as one of their personality characteristics. Flexible individuals also have starting a business as a career goal. Creative individuals see themselves as being in a job and organisation where they are able to developing new products.

These results provide some support for the third proposition as there does seem to be some association between the personality characteristics and career goals selected. The link between career goals and personality characteristics has also been established in literature. Individuals set career goals based on their career anchors (Van Rensburg, Rothmann &

Rothmann, 2003). According to Warr and Pearce (2004), individuals' personality traits are reflected in their preferences for career anchors. The career goals indicated as important for graduates to pursue is influenced by what anchors them, which in turn is influenced by their personality traits.

Organisations wanting to attract these kinds of individuals need to ensure that they offer the opportunity for these kinds of graduates to achieve these career goals. Importantly, they also need to ensure that the possibility of achieving these goals is explicitly marketed to graduates to improve the chances of the graduates applying. The increasing competition among organisations for graduate talent means that they need be attractive to graduates (Mayrhofer et al, 2005; Vermeulen, 2008). Understanding their personality and how it is associated with their career goals is one step toward helping them tailor their offerings, thus making them more attractive (Guthridge, Komm & Lawson, 2008).

Limitations of this Study and Recommendations

One of the limitations of this study was the scale of measurement that was used. No reliability or validity studies could be conducted for the scale given the level of data that was available. The information used in this study is secondary data which has been collected for a different purpose (Hair, Babin, Money & Samouel, 2003). There were only four items in this scale which were relevant to the present study's objectives and these were the only items that were therefore included in this study.

The actual elements in the items were seemingly not based on any academically-related theories. This study also relied on participants' self-selected personality traits. The selections of traits are thus only the participants' perception of their personality characteristics. It may not be an accurate reflection of their personality traits. As this was an exploratory study, the aim was merely to identify whether or not any relationships could be identified between the variables. For this study the scale used was deemed sufficient for the purposes of an exploratory study. As the scale lacked theoretical grounding, a recommendation for future research would be to extend this study by using empirically-

tested scales, i.e. which are based on academic theories of personality traits and the rest of the dependent variables.

Another limitation to this study is the inability to generalize of these findings due to the fact that a non-probability sample was used to collect data from.

Classification trees and correspondence analysis are exploratory techniques. These techniques are not intended to establish formal relationships. This study lacked the traditional statistical methods which usually accompany these two techniques. For future research, if a descriptive research approach is adopted, it is recommended that more traditional statistical techniques are used.

Contributions to Research and Practice

Academically, this study adds to the existing body of knowledge relating to the relationship between personality characteristics and its influence on career goals and preferences. This study focuses specifically on South African graduates' perceptions of their career preferences, goals and personality characteristics. This study's uniqueness lies in the fact that a study of this nature has not been conducted before on such a large scale within the South African context.

The practical significance of this study is important for South African organisations hoping to recruit graduates. An understanding of what attracts graduates will aid organisations in customising its employee value propositions to make it more attractive to graduates. This will increase the chances of attracting its desired calibre of graduates to the business. Organisations which are successful at attracting and recruiting the right kind of talent are more likely to sustain competitive advantage in the current economy.

When recruiting graduates, organisations need to be aware of which personality types they prefer. If organisations know which kind of personality types they wish to attract, this study will provide them with an idea of the kinds of jobs these graduates would prefer. Organisations would therefore need to ensure that their EVPs are tailored accordingly and that their marketing activities and recruitment drives emphasise the kinds of job features

that graduates with their desired personality type would be attracted to (Corporate Leadership Council, 2007; Vermeulen, 2008).

This study can also provide organisations with an idea of the kinds of organisational features that graduates with certain personality types are attracted to. Organisations can therefore position themselves to graduates as possessing their desired organisational attributes. This study can also enable organisations to consider whether or not the organisation's current attributes are desirable to graduates with their preferred personality characteristics. Organisations can also consider whether or not they need to change some of their attributes to ensure that they remain attractive to the younger generation of workers (Mayrhofer et al, 2005; Vermeulen, 2008). This is particularly important in organisations where knowledge workers are essential to its sustainability. Graduates are seen to be knowledge workers and therefore being in a position to continually attract them is important in order to sustain competitive advantage.

This study is the first of its kind to be conducted within the South African context. The large sample (n = 15 066) provides organisations with a wealth of information regarding graduates at South African universities' attractions to jobs, careers and organisations. The South African Graduate Recruiters Association (SAGRA) and the Magnet Graduate Survey is also well known in literature and within organisations. Many organisations have participated in studies conducted by them. The familiarity with and simplicity of the Magnet Graduate survey for organisations makes it more meaningful for organisations to identify with. This study establishes a link theory and practices by combining theoretical concepts, such as personality trait theory and career anchors or goals with a non-academic but practical and relatively popular survey. This link makes it easier for organisations to identify with the results obtained from this study and take it into account when making future plans for graduates.

Conclusion

Advancements in technology and globalisation have resulted in changes in labour demands. Organisations now require employees to be flexible in order to successfully keep up with what is now required in the labour market. In job selection and assessment procedures,

more emphasis is being placed on less tangible variables, such as personality. Personality has therefore become an important criterion in job selection (Semeijn, Boone, van der Velden & van Witteloostuijn, 2005).

It is acknowledged that personality characteristics are not the only variables that influence participants' responses. Responses may also be influenced by variables, such as demographics, early life experiences, life circumstances, beliefs, cultures and many more (Scholarios, Lockyear & Johnson, 2003). These factors have not been discussed in this report as it is beyond the scope of this study. This cross-sectional study demonstrates that personality characteristics have a relationship with graduates' preferences in terms of the job, organisational and career goals. It indicates the relevance of considering the role of personality characteristics in graduates' preferences in terms of the job, organisational and career goals. Like many of the studies referred to in the literature review, the presents study was able to provide evidence of relationships between personality traits, preferences for job features, organisational features and career goals (Judge et al., 1999). This study does not establish any causal relationships between the independent and dependent variables. It does however provide a contribution which can be used future more theoretically based studies.

References

Abdi, H., & Williams, L. (2010). Principal component analysis. (in press). *Wiley Interdisciplinary Reviews: Computational Statistics, 2*, 1-47.

Ajzen, I. (1991). The theory of planned behaviour. *Organisational Behaviour and Human Decision Processes, 50,* 179-211.

Ajzen, I. & Fishbein, M. (1980). *Understanding attitudes and predicting social behaviour*. Prentice-Hall, Englewood Cliffs, NJ.

Athey, R. (2004). *It's 2008: Do you know where your talent is? Why acquisition and retention strategies don't work.* USA: Deloitte Development LLC.

Barnett, B., & Bradley, L. (2007). The impact of organisational support for career development on career satisfaction. *Career Development International, 12,* 617-636.

Barrick, M., & Ryan, A. (2003). *Personality and work: reconsidering the role of personality in organisations*. San Francisco: John Wiley & Sons, Inc.

Barrick, M., Mount, M., & Strauss, J. (1993). Conscientiousness and performance of sales representatives: test of the mediating effects of goal setting. *Journal of Applied Psychology, 78*, 715-722.

Baruch, Y. (2006). Career development in organizations and beyond: balancing traditional and contemporary viewpoints. *Human Resource Management Review, 16*, 125–138.

Blake, R., & Sackett, S. (1999). Holland's typology and the five factor model: a rational-empirical analysis. *Journal of Career Assessment, 7*, 249-279.

Blass, E., & April, K. (2008). Developing talent for tomorrow. Develop NR: Ashridge Business School.

Burke, R. & Cooper, C. (2006). The new world of work and organizations: implications for human resource management. *Human Resource Management Review, 16*, 83-85.

Cappelli, P. (2008). Talent on demand: managing talent in an age of uncertainty. *International Journal of Training and Development, 13*, 661-664.

Cascio, W. (2006). *Managing human resources: productivity, quality of life, profits*. 7th Ed. New York: McGraw-Hill / Irwin.

Chapman, D., Uggerslev, K., Carroll, S., Piasentin, K., & Jones, D.A. (2005). Applicant attraction to organizations and job choice: a meta-analytic review of the correlates of recruiting outcomes. *Journal of Applied Psychology, 90*, 928-44.

Cohen, R., & Swerdlik, M. (2005). *Psychological testing and assessment: an introduction to tests and measurement*. 6th Ed. New York: McGraw-Hill.

Connor, H., & Shaw, S. (2008). Graduate training and development: current trends and issues. *Education and Training, 50,* 357-365.

Corporate Leadership Council. (2007). *Improving Talent Management Outcome: 10 Talent Management Insights for the Chief Human Resources Officer.* Retrieved August 24th, 2010, from www.clc.executiveboard.com

Corporate Leadership Council. (2006). *Creating an Integrated Talent Management Strategy.* Retrieved August 24th, 2010, from www.clc.executiveboard.com

De Bruin, G. (2002). The relationship between personality traits and vocational interests. *SA Journal of Industrial Psychology, 28*, 49-52.

De Fruyt, F., & Mervielde, I. (1996). Personality and interests as predictors of educational streaming and achievement. *European Journal of Personality, 10*, 405–425.

Deloitte (2010). Talent edge 2020: Blueprints for the new normal.

Donnelly, R. (2008). Careers and temporal flexibility in the new economy: an Anglo-Dutch comparison of the organisation of consultancy work. *Human Resource Management Journal, 18*, 197–215.

Dorbach, I. (2011). *Classification Trees*. Unpublished class notes, Department of Statistics, University of Cape Town, Cape Town, South Africa.

Dorbach, I. (2011). *Correspondence Analysis*. Unpublished class notes, Department of Statistics, University of Cape Town, Cape Town, South Africa.

Drucker, P. (1994). The age of social transformation. *The Atlantic Monthly,* November.

Earle, H. (2003). Building a workplace of choice: Using the work environment to attract and retain top talent. *Journal of Facilities Management, 2*, 244–257.

Economist Intelligence Unit Limited. (2010). Global firms in 2020: the next decade of change for organisations and workers: A report from the Economist Intelligence Unit. Pages 1-33.

Epstein, S. (1994). Trait theory as personality theory: can a part be as great as the whole? *Psychological Inquiry, 5*, 120-122.

Foxcroft, C., & Roodt, G. (Eds.). (2001). *An introduction to psychological assessment in the South African context*. South Africa: Oxford University Press.

Gottfredson, G., Jones, E., & Holland, J. (1993). Personality and vocational interests: the relation of Holland's six interest dimensions to five robust dimensions of personality. *Journal of Counseling Psychology, 40*, 518-524.

Guthridge, M., Komm, A., & Lawson, E. (2008). Making talent a strategic priority. *The McKinsey Quarterly,* 1-4.

Guthrie, J., Coate, C.,& Schwoerer, C. (1998). Career management strategies: the role of personality. *Journal of Managerial Psychology, 13*, 371-386.

Hair, J., Black, W., Babin, B., & Anderson, R. (2010). *Multivariate data analysis: a global perspective*. 7th ed. New Jersey: Pearson Prentice Hall.

Hair, J., Babin, B., Money, A., & Samouel, P. (2003). *Essentials of business research methods*. Hoboken, NJ: Wiley.

Hersen, M., & Thomas, J. (Eds.). (2006). *Comprehensive handbook of personality and psychopathology*. New Jersey: John Wiley and Sons, Inc.

Hogan, R., Hogan, J., & Roberts, B. (1996). Personality measurement and employment decisions: questions and answers. *American Psychologist, 51,* 469-177.

Igbaria, M., Kassicieh, S., & Silver, M. (1999). Career orientations and career success among research, and development and engineering professionals. *Journal of Engineering and Technology Management, 16,* 29–54.

Jolliffe, I. (2002). *Principal component analysis*. (2nd ed.) New York: Springer.

Judge, T., Higging, C., Thoresen, C., & Barrick, M. (1999). The big five personality traits, general mental ability, and career success across the life span, *Personnel Psychology, 52,* 621-652.

Lamb, M., Sutherland, M. (2010). The components of career capital for knowledge workers in the global economy. *The International Journal of Human Resource Management, 21,* 295-312.

Larson, L., Rottinghaus, P., & Borgen, F. (2002). Meta-analyses of big six interests and big five personality factors. *Journal of Vocational Behaviour 61,* 217–239.

Mayrhofer, W., Steyrer, J., Meyer, M., Strunk, G., Schiffinger, M. & Iellatchitch, A.(2005). Graduates' career aspirations and individual characteristics. *Human Resource Management Journal*, *15*, 38-56.

McCurley, M., & Murphy, K. (2005). *Psychological testing*. Ch 5. Texas: American Academy of Matrimonial Lawyers.

Meisinger, S. (2006). Talent management in a knowledge-based economy. *HR Magazine, 5*, 1-10.

Mount, M., Barrick, M., Scullen, S., & Rounds, J. (2005). Higher-order dimensions of the big five personality traits and the big six vocational interest types. *Personnel Psychology, 58*, 447-478.

Mount, M., & Barrick, M (1998). Five reasons why the 'Big Five' article has been frequently cited. *Personnel Psychology, 51*, 849-857.

Mount, M., Barrick, M., & Perkins, S. (1994). Validity of observer ratings of the big five personality factors. *Journal of Applied Psychology*, *79*, 272-280.

Mucha, R. (2004). The art and science of talent management. *Organization Development Journal, 22.*

Ng, T., Eby, L., Sorensen, K., & Feldman, D. (2005). Predictors of objective and subjective career success: a meta-analysis. *Personnel Psychology, 58*, 367–408.

Pervin, L., Cervone, D., & John, O. (2005). *Personality theory and research.* 9th ed. United States of America: John Wiley and Sons, Inc.

Pitt-Catsouphes, M. (2007). Between a twentieth- and a twenty–first century workforce: employers at the tipping point. *Generations,* 50-56.

Roberts, B., Kuncel, N., Shiner, R., Caspi, A., & Goldberg L. (2007). The power of personality: the comparative validity of personality traits, socioeconomic status, and cognitive ability for predicting important life outcomes. *Perspectives on Psychological Science,* 2: 313.

Roberts, B., & Robins, R. (2000). Broad dispositions, broad aspirations: the intersection of personality traits and major life goals. *Personality and Social Psychology Bulletin, 26,* 1284-1298.

Saddoris, A., (1985). Holland's occupational personality types. *John Hopkins School of Medicine Office of Faculty Development*, 1-5.

Schaubhut, N., Herk N., & Thompson, R. (2009). *MBTI® Form M Manual Supplement*. Mountain View, CA: CPP.

Schein, E. (1996). Career anchors revisited: implications for career development in the 21st century. *The Academy of Management Executive, 10*, 80-89.

Schein, E. (1977). Career anchors and career paths: a panel study of management school graduates. In J.V. Maanen (ed.), *Organizational Careers: Some New Perspectives,* 49-64, London: Wiley.

Schein, E. (1978). *Career dynamics: matching individual and organizational needs.* London: Addison Wesley.

Schneider, B. (1987). The people make the place. *Personnel Psychology, 40*, 437–454.

Scholarios, D., Lockyear, C. & Johnson, H. (2003). Anticipatory socialisation: the effect of recruitment and selection experiences on career expectations. *Career Development International, 8,* 182-197.

Schreuder, A.M.G. & Coetzee, M. (2006). *Careers: an organisational perspective*. (3rd ed.). Juta Academic, South Africa.

Schuler, R., Jackson, S., & Tarique, I. (2011). Global talent management and global talent challenges: strategic opportunities for IHRM. *Journal of World Business, 46,* 506–516

Semeijn, J., Boone, C., van der Velden, R., & van Witteloostuijn, A. (2005). Graduate personality characteristics and labour market entry: an empirical study among Dutch economic graduates. *Economics of Education Review, 24*, 67-83.

Shaw, S., & Fairhurst, D. (2008). Engaging a new generation of graduates. *Education and Training, 50*, 366-378.

Siebert, S., Crant, J., & Kraimer, M. (1999). Proactive personality and career success. *Journal of Applied Psychology, 84,* 416–427.

South African Graduate Recruitment Association. (2011). *The SAGRA graduate recruitment survey: 2011.* High Fliers Research Limited and the South African Graduate Recruiters Association.

South African Graduate Recruitment Association. (2010). *The SAGRA graduate recruitment survey: 2010*. High Fliers Research Limited and the South African Graduate Recruiters Association.

South African Graduate Recruitment Association. (2008). *The SAGRA graduate recruitment survey: 2008*. High Fliers Research Limited and the South African Graduate Recruiters Association.

Steele, C. (2009). Measuring career anchors and investigating the role of career anchor congruence. (Doctoral dissertation).

Stukalina, V. (2008). How to prepare students for productive and satisfying careers in the knowledge-based economy: creating a more efficient educational environment. *Baltic Journal on Sustainability*, *14*, 197-207.

Tarique, I. (2010). Global talent management: literature review, integrative framework, and suggestions for further research. *Journal of World Business, 45* 122–133.

Terjesen, S., Vinnicombe, S., & Freeman, C. (2007). Attracting Generation Y graduates: organisational attributes, likelihood to apply and sex differences. *Career Development International, 12,* 504-522.

Tomlinson, M. (2007). Graduate employability and student attitudes and orientations to the labour market. *Journal of Education and Work, 20,* 285–304.

Trank, C., Rynes, S., & Bretz, R. (2002). Attracting applicants in the war for talent. *Journal of Business and Psychology, 16,* 331-345.

Tucker, E., Kao, T., & Verma, N. (n.d.). Next-generation talent management: Insights on how workforce trends are changing the face of talent management. Hewitt Associates.

Van Dam, K. (2003). Trait perception in the employment interview: A five factor model perspective. *International Journal of Selection and Assessment, 11*, 43-55.

Van Rensburg, S., Rothmann, J., & Rothmann, S. (2003). The relationship between personality characteristics and career anchors of pharmacists. *Management Dynamics, 12*, 24-33.

Vermeulen, L. (2008). A quest for the best: talent management as strategic priority. *Journal of Public Administration*, *43*, 408-420.

Vermeulen, L. (2007). Talent management as strategic tool in retaining human capital. *Journal of Public Administration*, *42,* 272-284.

Warr, P., & Pearce, A. (2004). Preferences for careers and organisational cultures as a function of logically related personality traits. *Applied Psychology: An International Review, 53*, 423 –435.

Yang, S., Worden, S., & Wilson, G. (2004). Sources of organizational commitment: the effects of internal labor markets and worker values. *Sociological Spectrum, 24*, 667–688.

Zhang, L. (2008). Revisiting the big six and the big five among Hong Kong university students. *Educational Psychology, 28*, 1-14.